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ADDRESS.

THE PATHFINDERS.

Delivered to the Graduated Class of the Barnes Medical College, St. Louis, Mo., March 17, 1896.

BY JAMES T. JELKS, M.D.

Professor of Gynecology and Syphilology in Barnes Medical College, St. Louis, Mo.; formerly Professor of Genito-Urinary Surgery and Venereal Diseases in College of Physicians and Surgeons of Chicago; Ex-President of Arkansas Med. Society; Ex-Secretary Obstetric and Gynecological Section American Medical Association; Member of Chicago Med. Society, Mississippi Valley Medical Society, American Ass'n of Obstetricians and Gynecologists, and Southern Gynecological and Surgical Ass'n, and Ex-chairman of Section on Anatomy and Surgery of American Medical Ass'n.; Consulting Surgeon Mo. P. and I. M. Ry's.

HOT SPRINGS, ARK.

Gentlemen of the Graduated Class:—I have been requested by the faculty of Barnes Medical College to address a few words to you in parting. I feel the importance of the occasion, and if I shall say anything which you can carry home with you and which will enable you to be better physicians or truer men I will have done much. You have passed your final examination for the degree of M.D.; upon this I congratulate you and trust the future may bring to you, all that your mind can picture of success or your heart crave of sympathy.

You have only made a beginning; have simply learned the alphabet of your new life. We have tried to teach you *how* to study; how to use the tools of your new calling; have simply laid the foundation; upon this you must build a superstructure of hay, wood or stubble, or a structure of solid materials which will weather the storms of adverse fate, or come through the fires of criticism unscathed; then I say, your life work is just begun; remember the battle is not necessarily to the swift or the brilliant, but success comes rather to the painstaking, laborious one, who knows no such word as fail, and who is willing and anxious to work, contented, if he does well whatsoever his hands find to do.

Think not there are no more worlds to conquer; that the wonderful strides in the arts and sciences of medicine and surgery during the last twenty, yea, ten years, leaves no field for you to investigate. Some one of you may be an Alexander to lead the hosts of sanitary science along new fields and beside pleasant pastures. Few thought two months since of the possibility of photographing through opaque objects, and yet to-day, the world is familiar with the "X" ray of Roentgen, and its possibilities in medicine and surgery, as they loom up before us, are fairly dazzling. Here is a Pathfinder indeed; and we believe the time is not far distant when we shall see our friends as we talk with them over the telephone, whether they be in the next house, the next town, or as far from us as St. Louis from New York. New worlds are lying out all around us waiting a conqueror who shall show us the way.

"Then be up and doing,
With a heart for any fate;
Still achieving, still pursuing
Learn to labor and to wait."

There are two classes of men in life. The artist who plans, who leads the way, and the artisan who follows and does the work planned for him by the leader. These two comprise the working classes of humanity. Of the first class or

THE PATHFINDERS

I propose to speak a few words to you to-night, hoping thereby so to stimulate you in your work that some one among you may develop as a leader among men.

It is an easy matter for any one to follow the king's highway from place to place. It is comparatively easy for one versed in woodcraft to find his way out of a great forest and into the homes of civilization; or for the mariner with his compass to steer his course over the trackless sea. We can all follow where the Pathfinders lead. That was a beautiful character of Cooper's, "The Pathfinder" or old "Leather Stocking," with his unerring judgment of men and nature; always pushing out beyond the outposts of civilization, whether that was in the forests of New York, along the shores of the northern lakes or on the boundless prairies of the great West! And there are such men in the profession of medicine—leaders whose look is ever forward—and behind whom follow the great mass of the profession; many times ignorant of the hard work and sufferings and triumphs of him who was the pioneer along a rough and rugged road, now smoothed for the easy going of the less laborious ones. I would not have you understand that the work of the artisan is less honorable than that of the artist who plans the beautiful structure. Both are alike praiseworthy; and while it is given to a few to be leaders of men, yet we may all be workers.

"And departing leave behind us
Footprints in the sands of time."

The poetess Ella Wheeler Wilcox has written:

There are two kinds of people on earth to-day,
Just two kinds of people, no more, I say.
Not a sinner and saint for 'tis well understood
The good are half bad, and the bad are half good;
Not the rich and the poor, for to count a man's wealth
You must first know the state of his conscience and health;
Not the humble and proud, for in life's little span,
Who puts on vain airs is not counted a man;
Not the happy and sad, for the swift flying years
Bring each man his laughter and each man his tears.
No, the two kinds of people on earth I mean,
Are the people who *lift* and the people who *lean*.
Wherever you go, you will find the world's masses
Are always divided in just these two classes.
And, oddly enough, you will find, too, I wean,
There is only one lifter to twenty who lean.

The dead level of mediocrity we may all attain; it is the floor upon which we were born and upon which most of us will fret and work out our earthly existence. We are the artisans who do the drudgery of

the world, and I would not complain of mediocrity, for to the many, to the artisans, must the world look for the accomplishment of its vast problem of labor. Though we may belong to this class, let us love our work. If you do not love this profession you have chosen—love it enough to give your life enthusiastically to it, then let me urge you now to give it up, before it is too late, and find something to do which will command all the love and energy of your souls.

Enthusiasm, fanaticism if you will, moves the world. The enthusiasts are the Pathfinders for the world. "Youth without fire leads to an old age without warmth." Then while the warm blood of youth permeates your hearts, plunge headlong into your work. "Whatsoever your hands find to do, do it with all your might," and thus only may you hope to attain to an old age warmed by the thought of a life well spent. He who is without enthusiasm in his calling is a finished being, and is simply waiting for the inevitable, which shall take him over to the great majority.

I do not propose to go over the whole field of medicine and give you an outline of all its leaders, but to call your attention to a few of the men who have led us into the broad fields and green pastures of modern medical knowledge.

It has not been many years since the practice of surgery meant great agony to the patient. He had to be held, while the sharp steel severed nerve and muscle and bone. Think of the awful suffering of the wounded who had to have an extremity amputated, or a dislocated one restored to place! Think of the dreadful agony of maternity! And all these pains alleviated by a few whiffs of chloroform or ether!

My friend, Dr. Ghent, of Texas, tells of a woman who was a patient of his under these trying circumstances for her fifteenth time. He administered chloroform, and when she came to herself and found a lovely little boy in her arms burst into tears. She was so sorry that she could not go back and have them all over again under the benign influence of this God-given pain destroyer.

Yet the production of anesthesia for surgical operations we owe to an obscure country doctor in the backwoods of Georgia, Dr. Crawford W. Long. The pains of surgery and maternity annihilated and all things made possible to the surgeon by his ability to do thoroughly and without shock to the patient anything operative which should be found necessary!

CRAWFORD W. LONG.

In the brief time allotted to this address I can not go into all the details of the ether controversy. Dr. Luther H. Grandy, of Atlanta, Ga., in an article published in the *Virginia Medical Monthly* for October, 1893, gives its details. From the papers before him, supported by sworn testimony of those who witnessed the operation, it is clearly proven that Dr. Crawford W. Long removed a tumor from the neck of Mr. James Venable while anesthetized with ether on March 30, 1842. Dr. Long's ledger is produced and from it an extract is taken which shows Mr. Venable's bill for 1842, and reads as follows:

JAMES VENABLE, Dr.

Jan. 28,	Sulphuric ether..	$0.25
March 30,	Ether and excising tumor	2.00
May 13,	Sulphuric ether..	.25
June 6,	Excising tumor..	2.00

Dr. Long, and later on Dr. J. Marion Sims, published the details of this operation.

On July 3, 1842, Dr. Long amputated the toes of a negro boy for disease, doing the operation under ether anesthesia.

On Sept. 9, 1843, he extirpated a tumor from the head of Mary Vincent.

On Jan. 8, 1845, he amputated two fingers of a negro boy; two witnesses state that one finger was removed while the negro was anesthetized, and the other one when he was awake, just to show the bystanders that anesthesia was possible.

Dr. W. T. G. Morton, of Boston, gave ether for Dr. J. C. Warren in the Massachusetts General Hospital on Oct. 16, 1846. This was in a public hospital and was heralded over the world by the profession at once, and ether was soon in universal use.

While it is true that the young village doctor of Jefferson, Ga., was the first to use ether for the painless performance of surgical operations, he did not publish the fact until after Morton and Warren had written of their work. Priority of work lies with Crawford W. Long, priority of publication with Morton. Both deserve praise and honor. The timidity and retired, obscure position of the young country doctor prevented him from publishing his discovery to the world, but it was known to his neighbors and friends.

Boston, Mass., has erected a monument to Morton. One stands in Paris commemorating the discovery of the unknown country doctor in the backwoods of Georgia, and the State of Georgia has decided to place his statue in the hall of the immortals at Washington, D. C.

At a later period chloroform supplanted ether in many surgical operations and the profession is largely indebted to Sir James Y. Simpson, of Edinburgh, Scotland for popalarizing its use.

Recently there was gathered to his father's house and to "Our Father's house" another man who lived and died in a small town in the mountains of Georgia, and whose name will go sounding down the corridors of time with honor,

ROBERT BATTEY.

Dr. Battey's operation has been merged into Tait's, but he deserves great honor and praise for his bravery in devising an operation for the relief of suffering women. He was as modest as he was gentle and brave, and to know him was to love him for his personality.

The profession was forty years learning the lessons Bernutz and Goupil tried to teach them, and to

LAWSON TAIT.

is due the credit of compelling it to recognize the value of their teachings. They uncovered for us the pathology of certain diseases, and later Neisser and Nœggarath taught us their etiology, and as long as time shall last these men will stand out among the Pathfinders of this generation which has furnished so many leaders.

PASTEUR.

Pasteur, by his investigations, ascertained that fermentation was produced by living microörganisms, and that chicken cholera was an infectious disease and could be prevented by vaccinating the flocks with an attenuated virus. He also demonstrated that pebrine, a disease of silk worms, which was destroying the silk industry of France, was microbic and contagious, and hence preventable. He applied the same enthusiasm to his effort to discover the cause of anthrax, as it affected sheep. He found the source of

the disease, cultivated the germs, attenuated them, and by using the weakened germs and their ptomaines protected the flocks of France from destruction. Following up his idea for vaccination for infectious diseases, he has saved many lives from that frightful malady, hydrophobia; and the artisans in the profession have but followed Pasteur's lead in all the work which has led up to the antitoxins of diphtheria, pneumonia and other contagious diseases.

LISTER.

Resting back on Pasteur's work on the cause of fermentation lies the source of the inspiration which filled the soul of Joseph Lister of Edinburgh, and lead him to the experiment which culminated in the triumphs of modern antiseptic and aseptic surgery.

We call the details of modern surgical work Listerism, and correctly we do it, for Sir Joseph was the Pathfinder who led the way, when all the world was buried in the darkness of ignorance. The fact that we may to-day invade, with impunity, any organ of the human body; that thousands of lives are annually saved, that suffering has been lessened, is all due to the labors of these two men; first Pasteur, then Sir Joseph Lister. When the profession fairly learned that suppuration was not "laudable," that surgical inflammation was preventible, and that it was produced by microörganisms, then the pathway was opened for the hunt for the causes of those diseases which were not surgical. And one by one they have yielded up their secrets to the keen eye of the microscopist, aided by Koch and his method of staining tissues to be examined. Robert Koch became a Pathfinder, and when in 1882, he announced that he had discovered the cause of tuberculosis, the world fairly went wild. Since then, what mighty strides have been made in uncovering the sources of many of the scourges which afflict mankind! Consumption, typhoid fever, diphtheria, yellow fever, cholera, leprosy, the infectious diseases, puerperal fever, tetanus, all inflammatory diseases, *et id genus omne!* Malaria has recently yielded its hematozoon to the labors of Laveran, and we predict that the infecting microbe of each of the contagious diseases will be isolated before many years, and all this work, and all the lives saved by modern aseptic and antiseptic surgery, have been made possible by the enthusiasm of Pasteur, the loving, devoted Frenchman, and of Sir Joseph Lister, the laborious Scotchman.

MC DOWELL.

In the early part of this century, there lived in the backwoods of Kentucky, an obscure practitioner who was as brave as Julius Cæsar; a man who had "courage of his convictions," who dared to lead where, for long years no man was brave enough to follow. And from the pioneer work of that country doctor in the little Kentucky village, has grown up a host of ovariotomists; wherever the operation of ovariotomy is performed and a woman's life saved, there is erected a monument to the name and memory of Ephraim McDowell, the Pathfinder in the field of abdominal surgery. All honor to the obscure, brave and undaunted country doctor in the wilds of Kentucky! And yet, while living, he was abused and maligned as a murderer. When dead, the whole world of medicine and surgery honor his memory.

SENN.

Less than fifty years ago, there was born in a canton in Switzerland a little boy; his parents brought him to this country, and he grew up to robust manhood in the west; secured a good English education, struggled hard with poverty to secure his medical degree; obtained it with honor, and became an interne in the Cook County Hospital of Chicago, Illinois. A few years ago he took up the suggestion Sims made in 1878, and on dogs demonstrated that abdominal section, ligature of bleeding vessels and suture of wounded viscera, was not only feasible, but entirely practicable. After a great deal of painstaking work and careful experimentation he laid before the professional world the result of his work.

To-day the labors of Nicholas Senn are bearing fruit the world over, and while it is possible that in certain cases the Murphy button may supplant the decalcified bone plates in the intestinal surgery of the future, yet for all time, Nicholas Senn has written his name on the surgical history of the world. And whenever in the future, human life is placed in jeopardy, by wounds of internal organs, whether on the battle field or in the street brawl, and is saved by either of these or any other device, that life will be a monument, first to Sims for suggesting it, and next to Senn for showing the world how to do it.

The warm hearted friend, the enthusiastic, laborious physician, the brilliant operator and orator, the generous donator to the profession of the largest private medical library in the world, Nicholas Senn, will go down to posterity as the Pathfinder in intestinal surgery.

HAIG.

And we venture to place another man in this category of Pathfinders. When the profession realizes that all the cases of migraine or sick headache, diabetes, many of chronic Bright's disease, the cases of so-called idiopathic epilepsy, Raynaud's disease, the cases of so-called neurasthenia and hysteria, all cases of mental depression and consequent suicide, many of the forms of neuritis and the neuralgias and many of the skin diseases, as well as all forms of rheumatism and gout, are but expressions of that dreadful poison which each of us make every day and hour, viz., uric acid; I say, when we realize that all this mass of suffering, probably more than from all other causes put together, is produced by poison of endogenous manufacture, we will have cause to be thankful that personal suffering, with frequent attacks of sick headache, drove Alexander Haig, of London, to investigate uric acid and its protean manifestations.

Future generations will be freed from much suffering by following in the pathway Haig has cut out for us in the dark field of preventable human suffering.

SIMS.

In a little village in South Carolina, in 1836, a young man hung out his shingle for the purpose of practicing medicine. In a month or two the leading man of the village called on him and said: "Marion, have you had a case yet?" being answered in the negative, he was told to go up to the man's house, that the baby was ill. The young doctor went and found a very sick child. He thought the child had cholera infantum; told the family to send to his office in one hour and he would have the medicine ready. To his office he went, and got down from his bookshelf "Eberle on Children," the text-book of that day, and began to read up on cholera infantum. As the time drew near for Jennie to come for the medicine he was no more enlightened than when he began to read. One pecu-

liarity of Eberle's bkoo was, that there was a prescription on nearly every page. Well, in the young man's bewilderment he did not know what better he could do than to fill the first prescription, and he did it. In after years I heard him tell about it, and he remarked that "he turned a page on that baby every day, and filled the next prescription." When he got along toward the end of his prescriptions, the baby was ready to be transplanted as a rosebud to paradise, but the doctor did not know it. He had never seen death. He had heard the best of lectures, but had never seen sickness; there was no clinical teaching of medicine then. He paid a final visit to the child, and while sitting beside it and watching the little sufferer, suddenly it stopped breathing. Immediately the doctor picked the baby up, lowered its head, and lifting its legs in the air shook it, thinking the child had fainted and that he would thus get some blood into its brain and revive it. The old woman, who had come in to see the child and incidentally to size up the young doctor, placed her hand on his shoulder and said, "Doctor, you need not shake that baby; it is dead!"

It was a pitiful sight to see the young village doctor who had never seen sickness and death, called to prescribe for a sick child; pitiful to see him go to his books and after an hour's reading, fill the first prescription; pitiful to see this doctor "turn a page on that baby every day;" sadder to see him stand by the child's dying couch and utterly fail to realize that the icy fingers of the grim monster were laying their relentless grasp on its heart strings; and sadder still, as the fleeting breath suddenly ceases, to see him raise it up, lower its head and shake it, in a vain endeavor to shake the blood into its lifeless brain; and pitiful to hear the old woman, who had no faith in young doctors, say, "Doctor, you need not shake that baby; it is dead." What more pitiful sight than this? He who goes forth to save life, utterly unacquainted with death!

See this village doctor again. An accident to a woman suddenly reveals to his brain the way to successfully relieve suffering motherhood of a fearful disease, vesico-vaginal fistula, which had, from all time, been incurable, and which renders its victim a hopeless recluse, forever shut out from society. See him again, when he essays to practice those steps which a revelation from heaven has told him is the way to relief, fail utterly to accomplish a cure; again he tries and again he fails! But he believes first in himself, and knows he is right and must succeed. Again and again failure follows fast on failure. He had gathered together from among his acquaintances six women afflicted with this trouble. He supported them entirely at his own expense. He inspired these women with the belief that he could cure them. At first his professional friends assisted him in his operations; but at last they gave it up, and making assistants of his patients, he continued to operate on them; and for four years he kept at it, knowing he must succeed when he had eliminated all his errors. At last about the end of the fourth year, and on one of the women, the thirteenth operation success crowned his efforts. With success came failure of health.

See him again, broken down in health, go to New York to recover it and to tell the story of his successful work in the relief of the surgical diseases of women. See him thus broken in health, and after showing the profession in New York how to do this work, rejected by this profession and the very men to whom he had loaned his instruments. See him struggling with poverty and distress, the spirit all taken out of him as he feels in his heart that "Man's inhumanity to man makes countless thousands mourn." Alone, without money and without friends, in that great city! Not only without friends in the profession, where his warm heart expected them, but facing their opposition and finding it everywhere, he turned! He says his condition drove him as near crazy as it was possible for him to be and not lose his mind entirely.

See this enthusiastic, warm-hearted man, broken in health, in spirits and in purse; persecuted by the leaders of the profession he went to teach, and God knows they needed it! See him with his wife and children in distress, and his good wife cutting up her new dresses to make her children look respectable at school! But while in the depth of despair he found a friend at last. It is said, you know, that the darkest hour is just before dawn. And whom do you suppose that friend was? Henri L. Stewart, a newspaper reporter! Through him he reached the medical profession who were not connected with medical colleges, as well as those who were, and then the noble women of New York; and his great enterprise was founded. "The stone which the builders rejected, the same has become the head of the corner."

Struggling, in want, rejected by the profession of New York, and absolutely given no opportunity to show that he could cure a hitherto incurable disease! See him in Europe, with all the leading surgeons sitting at his feet, like Saul of Tarsus at the feet of Gamaliel! Invited to operate in the hospitals, congratulated by them on his success, given private cases on which to operate, his name spreading over the whole of the old World! Verily, a prophet is not without honor save in his own country. And while in the midst of these triumphs, on October 18, 1861, he writes his brave, devoted wife that he would not say *that* day was the happiest of all the days of his life, but that it was the proudest save three others. The first of those three other days was the one on which she gave him a rose bud through the garden fence (which rose bud he kept to his dying day); the second when she gave him her hand in marriage; and the third, the first anniversary of the founding of the Woman's Hospital of the State of New York.

From utter failure with the sick child of the village tailor, he became the successful and beloved physician for the crowned heads of Europe, who were glad to decorate him with medals. It is said of him, that there was no capital in the old world in which he could not have all the patients he could attend to in twenty-four hours after his arrival. And to-day, thousands of loving mothers owe their relief from suffering and restoration to the companionship of their kind, to J. Marion Sims!

While the little village of Lancaster, South Carolina, claims him, and Montgomery, Alabama, gave him to the world, yet, he belongs to humanity, and for all future time, the name of Sims is immortalized. Not only will suffering and injured motherhood for all time owe him a debt of gratitude, but until Sims in 1878, advocated before the British Medical Association, that all persons wounded in the abdomen should have their wounded viscera sewed up, and the bleeding vessels ligated, surgeons dared not invade the peritoneal cavity in this class of injuries.

This beautiful city has honored herself by erecting in her borders a well equipped school of medicine

named in his honor. The first hospital ever erected in the world for the treatment of diseases of women, was done by the energy and labors of this man, and stands to-night in the city of New York commemorating his life and work; and that city has also erected a monument in bronze to his memory. It was my privilege to know him personally, and a nobler, gentler, lovelier, braver man never lived than J. Marion Sims, the village doctor, the physician for the crowned heads of Europe, the reliever of woman's suffering! All hail to his God-like character and beloved memory! Here was a Pathfinder whose life and labors you may be proud to emulate, and I commend him to you as an example in every and any walk in life. Through darkest Africa and Asia, over the entire continent of America, and from the frozen steppes of Russia to the sunny, vine-clad hills of Italy, all future generations of women will owe him a debt of gratitude.

Having thus briefly referred to some of the leading men of this country, I beg permission, gentlemen of the graduated class, to conclude my remarks by the briefest allusion to the prospects which are before us. The Science and the Art of Medicine are not yet complete; there are many arduous labors to be performed; there are many brilliant triumphs yet to be achieved, and I doubt not the several members of this youthful, yet brilliant company, will be found in the front rank of that grand army who are to-day laboring to advance the bounds of our theory and to multiply and perfect the resources of our practice.

To the cultivation of true science, to the alleviation of human suffering, to the divine business of going about doing good, and to the leaving of our beloved profession something richer and better than we found, it is the goal toward which we should set our steadfast feet. The accomplishment of these high aims implies on our part, a lifetime of laborious days, and nights devoid of ease, of unwearied patience, of constant mental and physical exertion, of utter self-abnegation. The way is rugged, but the reward is sublime!

ORIGINAL ARTICLES.

TREATMENT OF FIBROIDS OF THE UTERUS.

SURGICAL ENVIRONMENTS, OPERATING ROOM, STERILIZING INSTRUMENTS, LIGATURES AND HANDS. PATIENTS, PREPARATORY AND AFTER TREATMENT. DRAINAGE.

BY FRANKLIN H. MARTIN, M.D.

PROFESSOR OF GYNECOLOGY POST-GRADUATE MEDICAL SCHOOL OF CHICAGO; SURGEON TO WOMAN'S HOSPITAL.

The environments of a patient who is about to submit to a surgical operation for a fibroid of the uterus must be made surgically clean. These environments include operating room, bed, sterilizers, instruments, ligatures and operators' and assistants' hands and clothing.

OPERATING ROOM.

In a private house a room should be selected which has direct light through one or two large windows; a room which can be stripped of furniture, hangings and carpets. It should be convenient to the bedroom of the patient, or better the bed can be placed in the room in readiness for use when the operation is finished—the operating room constituting the bedroom. The woodwork of this room should be thoroughly scrubbed with soap and water, and the walls and ceiling carefully wiped free of dust. The room should be thoroughly aired by opening the windows and a reliable means of heating should be at hand in order to render it dry and to keep it at a temperature of 80 degrees F. when required. The table, which is selected for the operating table, and the stands for instruments and dressings, together with all receptacles or slop tubs and basins should be carefully scrubbed and then conscientiously wiped with a 1:500 solution of chlorid of mercury. All tin, iron or porcelain basins should be boiled for one-half hour in a wash boiler or other large boiler, as a means of sterilization.

The bed, if possible, should consist of a hair mattress which has recently been purified by steam. In a hospital a large steam sterilizer should be provided where hair mattresses can be sterilized frequently. The bed should be completed with dry sterilized sheets, blankets and pillow slips. If there is no sterilizer at hand the bedding can be sterilized by boiling in water one-half hour, and drying in a pure room, and ironing with a hot iron by an intelligent attendant or nurse. Gowns, towels and aprons should be sterilized in the same manner as the bedding, provided there is no regular steam sterilizer at hand.

In an institution the operating room should have floor and walls of such material that they can be thoroughly washed with antiseptic solutions and provided with a central drain which will allow the cleaning of the walls and floors with water direct from a hydrant through a hose. The drain should be reliably trapped, or better, drain directly in to the external air. For convenience, a perfectly fitted operating room should have several anterooms, including a preparatory room where the solutions are prepared, the water sterilized, and where the heating apparatus for the sterilizers and the sterilizers themselves are located. This room should have washable walls. There should also be one or more anesthetizing rooms, and finally there should be convenient dressing and wash rooms for the surgeon and his assistants. The private operating room which I use at the Woman's Hospital is shown in Fig. 1. It has direct side light and a large skylight. Its walls and floors are of marble. It is lighted at night entirely by incandescent electric lights, gas being impracticable where an anesthetic is necessary; these lights are in abundance, so that an operation can be performed equally well at night or day. The preparatory room is adjacent. This is shown in Fig. 2. It is entirely in marble. The battery of Boeckmann's sterilizers is shown in the foreground. In the farther end are two large tanks in which the water is sterilized for the operation, one being filled with cold sterilized water and the other with hot water. They are connected with the operating room by large faucets which pass through the wall. Directly off from this room is an anesthetizing room, and adjacent to this are two dressing rooms with washing utensils. In the operating room is a spectators' rail which separates the operator, assistants, nurses and all operating paraphernalia from those who may be invited to witness operations.

Sterilizers.—In a private house, in emergency cases, an ordinary copper or tin wash boiler may take the place of the most elaborate sterilizer. The gowns, towels, gauze operating sheets and all large articles used externally can be thoroughly sterilized by boiling for thirty minutes. For sterilizing instruments, silkworm gut, silk and other smaller articles a smaller

kitchen article such as a sauce pan, or porcelain-lined flat pan, may be utilized as a sterilizer.

In large institutions large steam sterilizers are employed. I have used the Arnold sterilizer for dressings and instruments and other small articles until quite recently, since which time I have adopted for my hospital work the Boeckmann steam sterilizer (Fig. 3). These sterilizers are simple in construction, durable, inexpensive, efficient for all work, even the sterilization of catgut, and they possess the advantage of sterilizing with steam, while at the same time when the process is finished the articles are left perfectly dry.

At the Woman's Hospital several of these sterilizers are employed and everything that is liable to be required in several operations is sterilized, and the unopened sterilizers are placed in the operating room for future use. Surgeon's and nurses' gowns, towels, gauze, silk and silkworm gut in cotton-stoppered test tubes are removed as they are required at the time of the operation, while a separate hot water sterilizer (Fig. 4), is employed immediately before the operation for sterilizing the instruments.

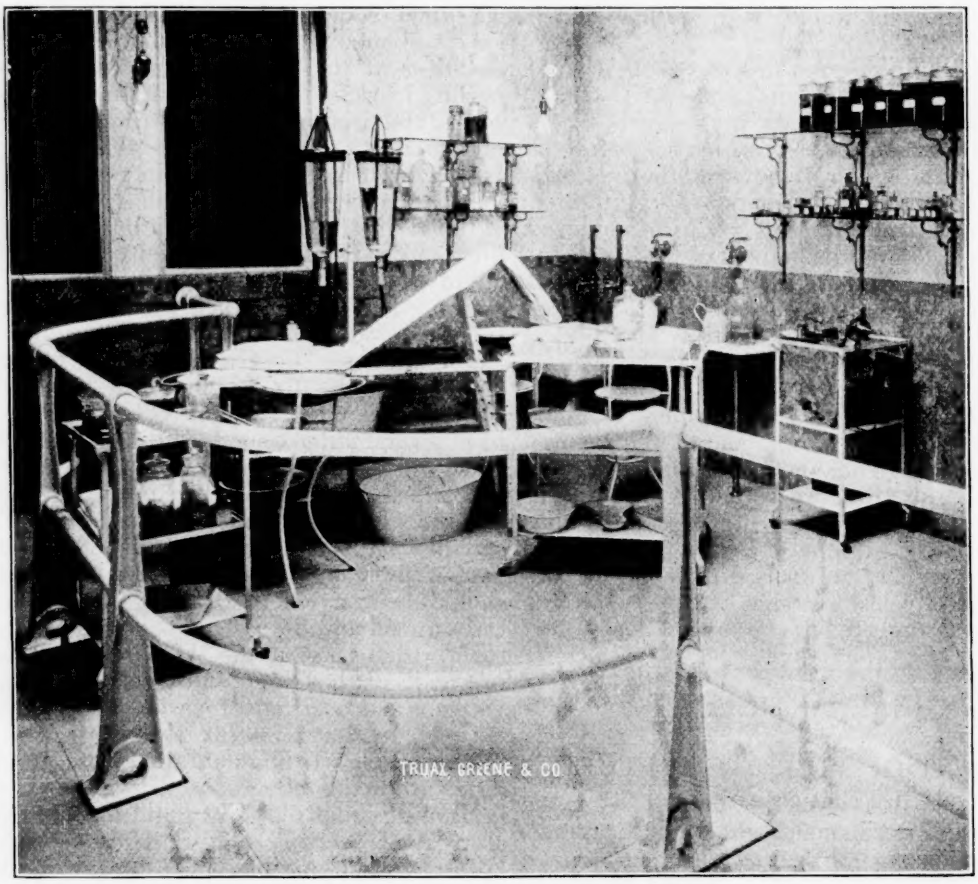


FIGURE 1.

Ligatures.—I employ braided silk, silkworm gut and catgut for sutures and ligatures. Silk and silkworm gut I sterilize by boiling, or by steam in the Boeckmann sterilizer. They are placed in small skeins in large test tubes loosely stoppered with cotton and subjected to a temperature of boiling water for twenty minutes on two successive days when I have no sterilizer at hand, and to the temperature of the superheated steam for a like length of time in my hospital work. I only open at the operation a sufficient number of tubes for the operation in hand, the balance being reserved for future cases. Tubes of silk and silkworm gut may be prepared in considerable numbers and sterilized by steam with an efficient cotton filter and afterward carried to operations anywhere. On opening, the cotton stopper is first burned down low with the tube, then removed and the skein of material carefully lifted out with sterilized forceps and placed in sterilized water when it is ready for use.

Catgut is the form of absorbable ligature which I employ for buried sutures. I have it sterilized in the Boeckmann sterilizer with dry heat at a temperature of 284 degrees F. for a period of three hours. Previous to sterilization the catgut, cut in suitable lengths, is wrapped in oiled paper, one thread in each paper and the paper enclosed in small hermetically sealed envelopes. While this accomplishes perfect sterilization, as can be demonstrated by bacteriologic tests it has been argued that sterilized catgut may act as a very favorable nidus for the growth of pathogenic germs in tissues in which it is buried, tissues which without the presence of this perfect sterilized culture medium would be competent to resist the few germs left in a wound, after ordinary surgical precautions had been exerted. For this reason I not only render my catgut aseptic with heat but I supplement that process by saturating it with non-poisonous antiseptics. According to Arthur Woodward Booth's admirable article in the *Therapeutic Gazette*, December, 1894, he found that pyoktanin blue in a 1 to 1000 alcoholic solution will render catgut thoroughly antiseptic and at the same time impart to it a longer life. Pyoktanin is a much more powerful antiseptic than

chromic acid and therefore may be employed in more diluted form. Compared with bichlorid of mercury it is a more perfect germicide, non-poisonous, and it imparts a longer life to the gut. Catgut saturated with pyoktanin becomes an antiseptic suture, the antiseptic of which can in no way prove a source of danger.

THE WRITER'S METHOD OF CATGUT PREPARATIONS.

A skein of new catgut is cut into about four lengths. This makes the threads of about forty inches each. Each section of the skein is twisted into a loose knot and they are soaked in ether for twenty-four hours in order to remove the fat. It is then boiled in alcohol, in a closed jar, for one hour in the steam sterilizer. Before boiling in alcohol the bunches are divided into their separate threads and each thread twisted into a little coil. After the sterilization by alcohol it is carefully removed from the jar by an intelligent conscientious nurse, with sterilized forceps in sterilized hands, to a jar containing a solution of pyoktanin 1 to 1000 in absolute alcohol. Here it is allowed to remain for twenty-four hours in order to become thoroughly saturated with that powerful antiseptic. I then have it distributed into small wide-mouthed one-half ounce bottles, containing oil of juniper. Into each of these bottles about four of the forty-inch strands are placed. The bottle is then corked with a rubber stopper and is not opened until it is to be used at an operation, when the catgut is threaded directly from the bottle. The bottle, or several bottles, with their rubbsr stoppers may be immersed in a 1 to 1000 bichlorid solution on the instrument table ready to be opened by the surgical nurse in the course of the operation. After it has once been opened I discard any small amount of catgut which may remain after the operation, preferring to use always from a fresh supply.

Instead of boiling the catgut in alcohol it may be sterilized in closed envelopes in the Boeckmann sterilizer as before described, at a temperature of 284 degrees F., and then treated from that point in the same way as that sterilized by boiling in alcohol.

It seems to me that this is an ideal and simple method of catgut preparation. There can be no doubt

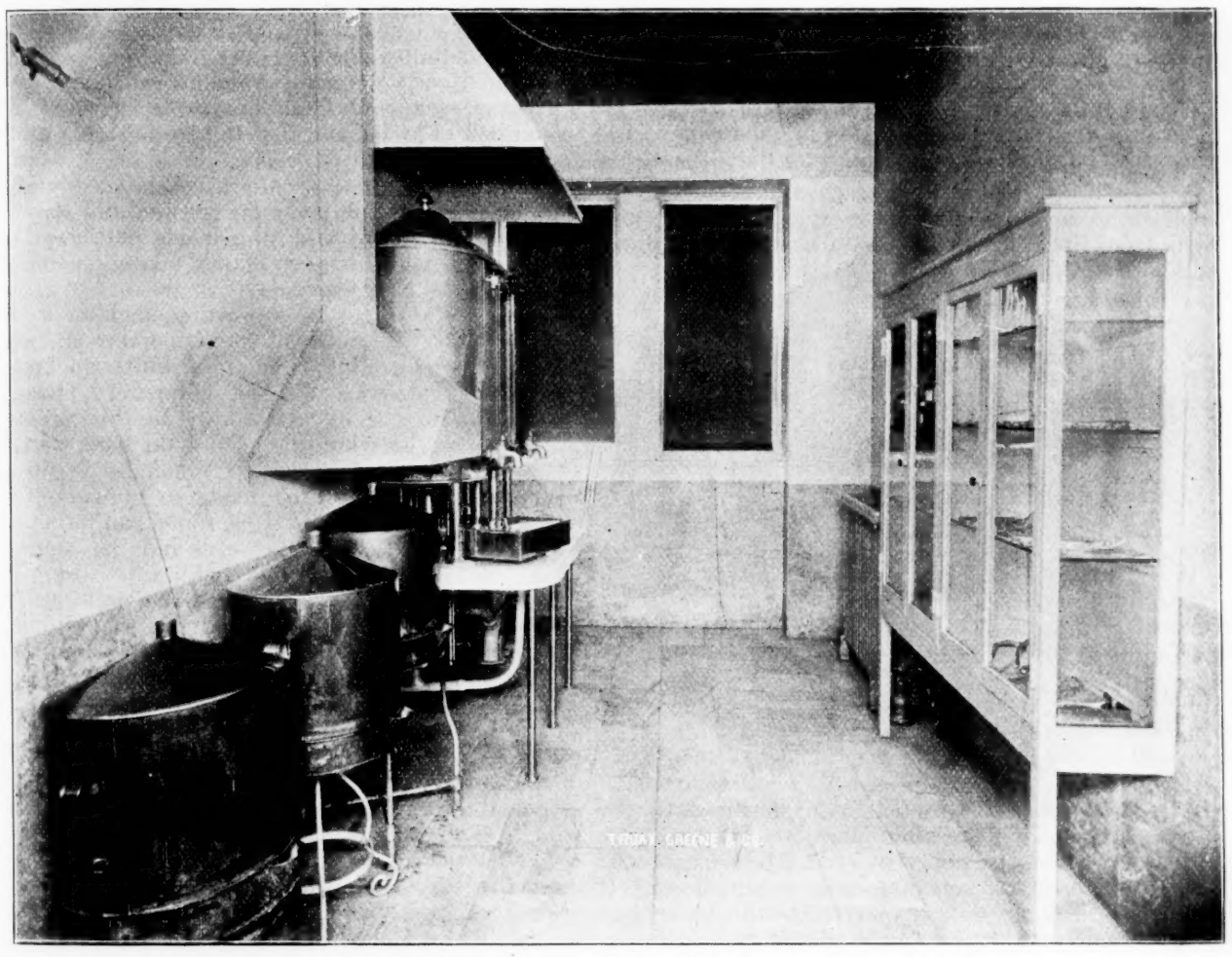


FIGURE 2.

of its absolute sterilization after it has been boiled in alcohol for two hours, or after it has been submitted for three hours to a temperatnre of 284 degrees F. in the sealed envelopes in the Boeckmann sterilizer.

Dr. Booth found that pyoktanin permeated every fiber of catgut when it had lain in a 1 to 1000 alcoholic solution of the drug for twenty-four hours.

Dr. Booth quotes Sternberg as quoting Jaenicke on the antiseptic properties of pyoktanin as follows:

Staphylococcus pyogenes aureus restrained by solution of 1 to 2,000,000; bacillus anthrax aureus restrained by solution of 1 to 1,000,000; streptococcus pyogenes aureus restrained by solution of 1 to 333,000. In blood serum stronger solutions are required.

Thus we have not only a sterile catgut, but we have that sterile catgut thoroughly saturated with an efficient and non-poisonous antiseptic. The juniper oil preserves the catgut indefinitely, it fixes the methyl blue so that it will not stain the hands, and it keeps the catgut soft and pliable.

The life of the catgut in the tissues prepared by this method is a little less than that prepared by chromic acid, but considerably longer than that prepared by bichlorid of mercury. By placing it in small bottles it can be handled economically without the necessity of ever being obliged to open twice the same supply.

Sponges.—Sea sponges are not safe when prepared under the most careful supervision, whereas gauze sponges may be perfectly reliable whenever there is the simplest device at hand in which they may be boiled.

The best gauze sponges are made from loose-mesh gauze folded into three or four thicknesses, with the edges fastened with a running stitch of cotton thread. They may be made of any size. These sponges are sterilized in a steam sterilizer, or in emergency cases they may be sterilized by boiling with the instruments.

FIGURE 3.

In laparotomy cases I prefer these sterilized by the dry method. They are then used but once and are discarded. This is not economical because of the large number of sponges frequently required, nor is it necessary. The advantage possessed by the dry sponge is in the increased absorptive power of the gauze.

Gauze.—The writer has devised an apparatus in which to sterilize gauze for operations, either for hospital operations or operations away from home. Chas. Truax, Greene & Co. kindly constructed this apparatus for me, as well as the furniture shown in the operating room in Fig. 1. It consists of a little stand which fits into the catgut sterilizer of the Boeckmann apparatus, or which can be set into any steam sterilizer (Fig. 5). The stand contains seven large test tubes, two inches in diameter, and about eight inches in length. In each of these tubes can be placed all the gauze of any one kind that will be required at any ordinary operation, which is about two yards of sheet iodoform gauze. Ordinarily I have two tubes filled with iodoform sheet gauze, one with plain sterilized gauze, one with one-inch strip iodoform gauze cut the strong way of the cloth, one with two-inch strip iodoform gauze cut in the same way, and one with a skein of silkworm gut and a skein of braided silk. These tubes are loosely filled and their mouths closed with cotton. They are then subjected to steam sterilization in the Boeckmann or other steam sterilizer at maximum heat for one hour. They are then set aside and the following day they are again subjected to the superheated steam for one hour, and then dried by removing the cork in the top of the Boeckmann sterilizer so as to get the action of the dry heat. The contents of the tube are now thoroughly and permanently sterilized, and will remain so for weeks if the cotton stoppers in the mouth of the tubes are not removed.

When I wish to preserve these tubes for indefinite use I have the nurse slip a sterilized rubber cap over the cotton and the end of the tube before removing them from the sterilizer. They may then be set aside for an indefinite time.

When I wish to operate away from the hospital, I place the rack containing the tubes required into a metal box (Fig. 6), and that in turn is stored away in my instrument bag.

Preparation of Operator and Assistants.—It should not only be taken for granted but should be insisted on, that any and all persons participating in the high calling of surgery should take a general bath, including the hair, every day.

Dress.—For important operating, such as we have to deal with, special dress for the operator and assistants is indispensable. Suits of white ducking or linen should displace the street apparel. Over this sterilized gowns should be worn. In this dress the operator can be comfortable and do hard work in a temperature of 80 degrees F. When he is through operating all wet clothing, made so by perspiration and the fluids of the operating room, can be replaced by his ordinary dry out-door dress and the reminders of the operating room are left behind.

Preparation of Hands.—After the nails are filed short and smooth the hands and forearms should be thoroughly scrubbed for fifteen minutes in hot water with a stiff nail brush and plenty of pure soap. The water should be changed at least five times. The time should be estimated by an actual time piece and not by guess work. A nurse should supervise this part of the work in important operations, and report to the responsible chief any laxity on the part of any participant. The spaces beneath the nails should be thoroughly brushed and the undersurface of the nail scraped with a steel nail cleaner. After the soap and water scrubbing, the hands should be washed in alcohol and then immersed in 1:1000 bichlorid of mercury solution, and this solution brought into contact with all irregularities by means of the hand brush. The hands should, finally, be rinsed in warm sterilized water. Before beginning the operation the hands should be rinsed in hot water which is placed in a basin close to the operator, so that it may be used from time to time during the operation. After the hands are once washed they should not be allowed to come in contact with anything before or during the operation which is not surgically sterile.

Arrangement of Operating Room.—The steam or dry heat sterilizers containing dressings should be convenient to the nurse. Reservoirs of sterilized water, hot and cold, should be placed near the sponge table. Two large glass irrigators should be at hand. The table with which the Trendelenburg position may

be obtained is necessary, and should be placed in an advantageous position for light and assistants. For a laparotomy, the arrangement of the furniture and participants of the operating room should be approximately as follows: The table near the center of the room with the head of the patient near the chief window. Anesthetizer at head of patient. Operator on right of table (from head). Chief assistant and assistants opposite the operator with the chief nearer the head of the table. The surgical nurse in charge of instruments at stand to right of operator. Nurse in charge at foot of table with sponge dish on small stand in reach of second assistant. Assistant nurse to her right, the latter to work sponges, and to attend to irrigators, sterilized water, etc. Superintending nurse without regular assignment, ready for emergency. To left of operator, small table with sterilized solution for hands. Back of the assistants a similar table. Visiting physicians, admitted after everything is ready for the operation to begin, are arranged around the room out of reach of the operating corps, or any concerned in the operation.

If the case is one where a vaginal operation is required, the head of the patient is directed away from the window, and the patient in the exaggerated lithotomy position is placed with the buttocks directed toward the light. The limbs are supported on either side by two assistants. The operator sits at the foot of the table with the instruments at his right hand. To the left is the nurse with sponges and the irrigator.

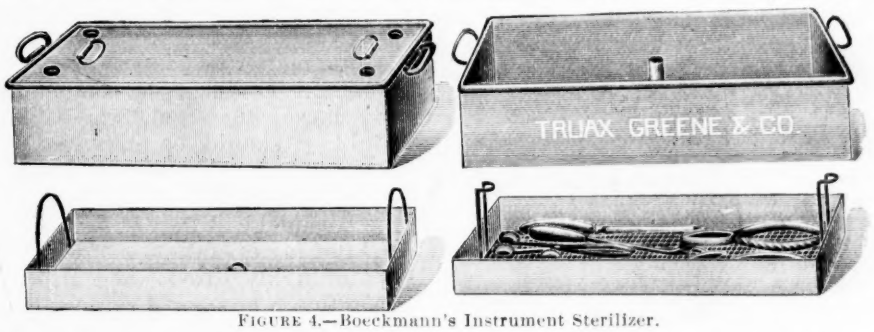


FIGURE 4.—Boeckmann's Instrument Sterilizer.

PREPARATORY TREATMENT OF PATIENT FOR LAPAROTOMY OR VAGINAL OPERATIONS.

Kidneys.—The failure to recognize obscure kidney disease in patients before submitting them to a severe operation has been the cause of many avoidable deaths. We should not only recognize kidney difficulties in every case but we should also know when a case is laboring under some form of kidney trouble, whether that stage has been reached beyond which it is safe to proceed. It is not enough that the urine in any given case is approximately of normal quantity, of approximately normal specific gravity, and that it gives negative results in tests for albumin and sugar. It is necessary to learn the history of the case, to estimate the specific gravity in a twenty-four hour specimen, to ascertain the amount of urea for twenty-four hours, and supplement this with a thorough and complete microscopic examination.

In diabetes we should not operate. In interstitial nephritis when the disease is not far advanced an operation may be risked with proper preparatory treatment. These latter cases are the very ones which from their great difficulty of diagnosis are often neglected, and consequently disaster results. The importance of the subject must be my excuse for entering into primary details. The following summarizes the signs of chronic interstitial nephritis: Lowered specific gravity of urine; patient arising at night to void urine (when there is no bladder or urethral disease to give rise to such a procedure); an enlarged heart with accentuated second sound; a tense pulse and diminished urea. Albumin is frequently absent. The diagnosis is doubly sure when hyaline casts are found.

Every patient should be scrutinized in all these points. If the foregoing state of affairs exist to a marked degree I refuse to operate. If, however, with the above symptoms I find a normal quantity of urine, which does not show a reduced specific gravity under 1010 to 1014 and the amount of urea does not sink lower than six or seven grains to the ounce, if the patient is well preserved generally without advanced heart disease, I am confident that I can operate with safety, if I can secure proper preparation.

I prepare these patients, first by placing them on an exclusive farinaceous diet with milk and fruit for an indefinite number of days before the operation. A week or ten days before the operation a diuretic is added with instructions to drink large quantities of water, the object being to increase the daily quantity of urine from 60 to 100 ounces, in order to thoroughly flush the kidneys and rid the patient of dangerous accumulations. With 60 to 100 ounces of urine flowing for several days, with the patient living on a non-nitrogenous diet, with the urea in improved proportion considering the diet, I feel safe in risking an operation.

Dr. Charles W. Purdy, who has had an enormous experience in watching the behavior of kidney diseases under operations, says in reference to *chronic parenchymatous* nephritis: "I see no reason why these cases, if unaccompanied with dropsy may not be operated upon if carefully selected."

Bowels.—In preparing patients for an ordinary laparotomy I begin preparations of the bowels two nights before the morning of the operation. The first point is to seek thorough emptying of the bowels throughout their entire length. The second point should be to render their contents thoroughly aseptic and the third should be to impart to them a maximum tonicity.

The bowels are emptied by means of mercurials and salines. The first night of preparation, six grains of blue mass are given. The next morning at 6 A.M., one drachm doses of citrate of magnesia are given every hour until the bowels move, or feel as though they would move with the aid of a small enema. This ought to insure a thorough movement of the entire length of the intestinal canal. If the movements are such, with the above treatment, to insure a thorough evacuation, and to start a free flow of bile, as indicated by the yellow glistening appearance of the stool,

no further catharsis is necessary. The lower bowel should be thoroughly evacuated, however, by the employment of large enemas of soap and water, repeated four or five times during this second day of preparation. The last enema should be given late in the afternoon of this second day of preparation, if the operation is to be done the following morning, and the next morning if the operation is to be performed in the afternoon. The bowels are rendered aseptic by large doses of bismuth and salol. During the first and second days of preparation, gr. x of salol and gr. xx of subnitrate of bismuth should be given every six hours.

The bowels are stimulated by means of carminatives, alcoholic stimulants and strychnin. The second day of preparation 1 drachm doses of tr. of cardomon in one ounce of brandy are given every six hours. Strychnin is commenced three days before the operation in 1-40 gr. doses every eight hours, and gradually increased in quantity until 1-20 gr. doses are given. The bowels should be kept in a thoroughly aseptic condition by feeding the patient a milk diet for two days before the operation.

External Preparations of the Patient.—The first day of the preparation the patient should receive a thorough general bath and then be placed in clean clothing and a clean bed. The abdomen should then be rubbed with a saturated solution of permanganate

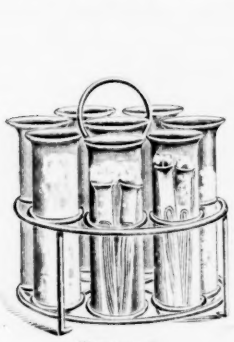


FIGURE 5.

FIGURE 6.

of potassium until it is of a uniform mahogany color. This should be scrubbed off by means of a sponge or brush and the application of a saturated solution of oxalic acid. A green soap compress should be bound on the abdomen, this latter to remain all night. Vaginal douches of, first, soap and water; second, 1:5000 bichlorid solution, and third, plain sterilized water should be employed this first night. These should be repeated the night before the operation, and a last vaginal douche given immediately before the operation. The second night of preparation should begin with shaving of the abdomen and pubis, and should be followed by applying a bichlorid compress. Immediately before the operation, after this compress is removed, the abdomen should be scrubbed with green soap and hot water, this to be followed with alcohol or ether, and covered with an antiseptic towel until the incision is made.

The bladder should be evacuated by means of a catheter immediately before the operation.

Dress.—The patient is to be put in a long, loose, woolen night gown immediately after an operation, and is thoroughly covered, except the abdomen, with flannel blankets during the operation.

Operation.—I am suspicious of an operator who operates on time. The best operators are those who operate well in the smallest space of time; this implies that the best operators are slow operators. An abdominal incision should be a clean, true, unhaggled cut, so that accurate coaptation is possible. Cold sponges should be employed on the external incision in order to contract the capillary vessels and check their bleeding without the necessity of forceps. Forceps should be employed, however, everywhere in abdominal surgery that their use will save blood, because most of our old-fashioned shock was caused by unnecessary loss of blood. Keep the operative field free from oozing points if possible, even at the loss of a little time. The peritoneum is best opened between two catch forceps elevated so as to present a thin fold. After a small opening is made, the finger passed into the cavity should act as a guide upon which to complete the incision. The peritoneal edges should be attached to the integumentary edges by means of catch forceps, to prevent its peeling off from the abdominal walls in the subsequent manipulation. In all pelvic surgery of smaller tumors the pelvis should at this point be elevated by means of the Trendelenburg table; the elevation being sufficient to draw the bowels away from the field of operation, and to elevate the contents of the pelvis. Sterilized silk or catgut should be employed for any pedicle which it is safe to tie and drop. Catgut may be employed to close simple peritoneal rents.

Drainage should be employed in all cases where extensive enucleation has occurred, where there is a slow venous oozing from separated adhesions or where aseptic matter has in any way contaminated the peritoneum. Drainage, in competent hands, never does any harm, therefore, where there is the slightest doubt, it should be employed. It has saved many lives, and made more comfortable those who might not have died without it, but who have been given the advantage of it.

After my operation is finished, the peritoneal cavity is thoroughly dried; then if there has been at the operation a process of enucleation, leaving of necessity slight oozing points, or in cases where ordinary adhesions have been separated, after drying the cavity as far as possible, I place in the cul-de-sac a glass drainage tube and pump out any remaining fluid. I next protect the abdominal contents from the abdominal wound with a large flat sponge, and insert the sutures, after which I again pump the drainage tube. If there is more than a drachm of bloody fluid, I leave the tube in until the sutures are nearly all tied and the sponge removed; then I make a last trial of the tube. If the fluid amounts to one-half drachm or more, and is bloody, I allow the tube to remain; if, on the contrary, the tube is nearly dry, or the contents is simply colored water, the result of flush, if it has been employed, I remove the tube. What has been done influences one in regard to drainage. I almost invariably drain after it has been necessary to flush. I believe the peritoneum is satisfied, to an extent by the flushing, and will consequently neglect, in a degree, to absorb any remaining fluid. Experience seems to sustain that argument. Mikulicz drain is almost indispensable in a limited number of cases. Cavities may be packed with gauze which can not be reached with glass drainage tubes. Hemorrhages in cavities so packed will cease, when a glass drain would not avail. Operations are now possible with the Mikulicz drain which were impossible without it. The question about drainage is not, shall we drain, but how, and how often.

To Prevent Intestinal Obstruction.—In abdominal surgery one is constantly watching the behavior of the intestines. They are our prominent point of attack in our preparatory treatment, they are our greatest source of anxiety during the operation, and upon their management after the operation much watchfulness is imposed. All of this anxiety is caused by our desire (with the exception of care against wounding when operating) to prevent obstruction. It, therefore, is a point in the technique of this work to which discussion may profitably be directed.

The pathology of obstructions is well summed up by a valuable contribution on this subject by Dr. Ashton, of Philadelphia, from which I quote:

"Adhesions between the intestines and raw surfaces: *a*, to an omental stump; *b*, to the edges of the vaginal wound following supra-pubic or vaginal hysterectomy; *c*, to a pedicle; *d*, to raw surfaces on the intestinal wall.

"2. Paralysis of the intestines.

"3. Local spasm of the intestines.

"4. Impacted feces.

"5. Bands of inflammatory lymph.

"6. Adhesions between coils of intestines or between the gut and neighboring parts, due to traumatic inflammation.

"7. Kinking or twisting of the intestines, due to faulty technique.

"8. Including the intestines within the loop of a suture of the abdominal wall, or between the edges of the abdominal incision.

"9. Slipping of a coil of intestines through a slit or an aperture."

Under the first head, "Adhesions between the intestines and raw surfaces," we must seek our remedy during and following the operation. Intestines should be handled and exposed as little as possible in order not to produce hyperemia or denudation of their surfaces. An omental stump of any considerable size should be selveged by inverting its raw edges with a running catgut, or with ligature. When denudations of the pelvic or intestinal pertioneum can not be reinforced by a superabundance in the neighborhood, care should be taken to carefully arrange the intestines in as near the normal position as possible. A pedicle of large size should be covered by securing over its end the peritoneal covering with a running stitch of catgut. Raw surfaces of any considerable size on the intestines should be covered with peritoneum if possible, with the edges well secured, Paralysis of the intestines may be avoided by emptying them thoroughly previous to the operation of all irritating matter (which may ferment and cause distension) by rendering the contents aseptic by means of bismuth and salol, and the employment of full doses of strychnia to act as a muscular tonic. Carminatives, such as wintergreen, cardamon, etc. may also be employed as antiseptics and muscular tonics. During the operation the intestines should not be handled or chilled in order to avoid paralysis. After the operation, nourishment of non-fermentive and easily absorbable nature should be employed. The bowels should be stimulated to early action in order to keep them empty and avoid the beginning of distention, which soon leads to paralysis. An early movement of the bowels, or free passage of flatus, assures a normal disposition of the bowels as regards location. If they adhere after such time, it will be in an advantageous, not cramped position.

A flat sponge beneath the abdominal wound, after carefully spreading down the omentum and before the wound sutures are inserted, will avoid including an intestine within the loop of a suture, or between the edges of the abdominal wound.

When ventral fixation of the uterus is practiced, great care should be exercised in disposing of the intestines in such a manner as to avoid their slipping through the opening left between the uterus and the abdominal wound.

AFTER-TREATMENT.

The immediate after-treatment consists in stimulating the patient out of any tendency to nervous shock which may exist. She should be surrounded in bed with dry heat, and in hospitals placed on a water bed. If there has been any considerable loss of blood, the feet may be elevated in order to restore blood pressure in the brain. In severe cases of shock from loss of blood, it is well to bandage the blood out of the lower extremities by means of elastic bandages. A saline solution under the integument may assist to fill the blood vessels. Oftentimes the difficulty is not lack of fluids so much as lack of tone, which allows a patient to bleed to death, as some one has put it, "into her own dilated capillaries and venules." Here direct arterial stimulants and vaso-constrictor remedies are called for, as well as strong nerve stimulants. In these cases, I immediately order hypodermics of nitroglycerin, strychnin and digatalin. Stimulating enemas of whisky and warm water may also be given. What is done for shock should be done promptly, as patients who are allowed to go on for a few hours with a sub-normal temperature and high pulse, are with great difficulty restored.

Dressing Glass Drainage Tube.—The glass drainage tube, when it is allowed to remain, should be emptied with a syringe with a long rubber nozzle the first time in one hour. If the fluid is more than a drachm it should be dressed again in an hour, if a drachm or less, the interval between dressings should be increased one hour, and the same rule followed until the fluid is less than a drachm and of a light amber color, and the interval from four to six hours. At this time the tube may be removed. If it is left longer than thirty-six hours, a piece of sterilized gauze should be put in its place for six hours, when the latter is removed and the wound is closed with slight pressure and its closure is obtained by extra pressure of external straps.

Care of Capillary Gauze Drain.—If capillary gauze drain has been employed instead of the glass drainage, the protruding gauze (from vagina or abdominal wound) should be kept abundantly covered with a pad of loose fluffy gauze, and this should be changed as often as it becomes saturated with fluids. If all drainage ceases in twelve to twenty-four hours as indicated by dry dressings, the gauze packing may be removed. However, if drainage is free and patient is normal it may remain forty-eight to sixty-two hours. When it is possible this drainage should have its exit through the vagina. After it has been removed a loose gauze packing should be placed over the wound.

Dressings.—The wound is closed with silkworm gut, including all parts of the wound edges, and dusted with sterilized iodoform, and the dressing is a thick one of iodoform gauze, held in place by adhesive straps tight enough to take the strain off the sutures without puckering the integument. Over

this is placed a good allowance of absorbent cotton, and all retained with a binder. The dressings are not disturbed for four days unless there is pain or temperature. At the end of the fourth day the dressings are carefully removed, and the wound is thoroughly but carefully washed with equal parts of 95 per cent. alcohol and 1:5000 bichlorid solution. Iodoform is again applied and the dressings renewed. The seventh day, before the stitches are removed, I again have the wound washed in the same manner and, after their removal, dressed as before.

In vaginal operations the vaginal wound is dusted with sterilized iodoform and the vagina loosely packed with strip gause. It is removed in forty-eight hours and after twelve hours vaginal douches of bichlorid of mercury solution followed by plain water are employed once or twice daily.

Bowels.—If flatus has not passed freely, per rectum, in twelve hours by the simple employment of a rectal tube, I employ the "one, one, one" enema, one ounce of sulphate of magnesia, one ounce glycerin and one ounce water. If this does not start the gas in two hours, I order it repeated in double quantity. If this enema is not retained, and flatus has not passed, I order an enema of soap and water one pint, with one-half drachm of turpentine. If they are still obdurate, I begin one-half grain doses of calomel in ten grains of bicarbonate of soda, given every two hours for four doses, or until gas passes, alternated with drachm doses each of gran. citrate magnesia and sulphate magnesia in an ounce of water. Following these remedies in one hour, another "one, one, one" enema is given. It must be an obstinate case indeed that will not yield under the above remedies. If the stomach is irritable and will not tolerate the bicarbonate of soda, the calomel may be given dry on the tongue. Other salines may be substituted for the above if they are objectionable. The bowels should be moved from above on the fifth day with small doses of some effervescing salt, or, if required, a more vigorous laxative.

Diet.—First week, fluids; second week, semi-solids; third week, semi-solid and solid food in small quantities; fourth week, good substantial food, with a few curtailments. As soon as the patient is out of the anesthetic, I begin to give hot water in teaspoonful doses as often as every fifteen minutes. If the stomach tolerates this, the quantity is increased to one-half ounce, and the interval may be increased in length. If the patient is nauseated and the hot water causes vomiting (and it should be hot water), or increases the nausea, it should be withheld. When the patient can take the hot water, and still complains of thirst and begs for cold water the nurse is instructed to let her rinse her mouth with cold water. Ginger ale is a good alternate with water for the first twenty-four hours. After twelve hours, drachm doses of peptonized milk may be sandwiched with the water. If peptonized milk is offensive, plain sterilized milk may be substituted, or sterilized milk and lime water. Milk in some form, I feel to be the most perfect food. It should be increased every hour until ½ ounce doses are given by twenty-four hours, to one ounce by forty-eight hours, and to two ounces by the end of sixty-eight hours. Barley water may be alternated with the milk. Later, the monotony may be relieved with the meat and shell-fish broths, thin gruels, etc. The fourth or fifth day the patient may be allowed to extract the juice of broiled beef by chewing it; the fiber, of course, should be rejected. Tea may be given the second or third day as a relish. Orange juice, and the juice of other fruits, may be given in small quantities the third or fourth day. Rules can not be laid down in regard to the diet of these patients, general principles only can be hinted at. The patient should be seen each day and her wants studied. If stimulants are required, one of the best is good brandy. Champagne is all right if its sweetness does not make it objectionable. If patients are unable to retain enough by stomach to properly nourish them, enemas of either milk or stimulants should be resorted to.

Getting Up.—Uncomplicated laparotomy cases are gradually bolstered up until they can sit in a bed with a bed rest at about the fifteenth or sixteenth day, sit up in a large chair at the twenty-first day, and leave the hospital from the twenty-eighth to the fortieth day.

SERO-THERAPY IN THE TREATMENT OF TUBERCULOSIS; REPORT OF CASES.

Read before the St. Louis Medical Society, March, 1896.

BY PAUL PAQUIN, M.D.

In January, 1895, I had the honor of submitting to the St. Louis Medical Society, a report of experiments made at the St. Louis City Hospital and at the Poorhouse in the treatment of 22 cases of pulmonary consumption, all of which were in the second and third stages. This report was rather premature. Had it been possible, it would have been delayed much longer in order to establish better the results of the clinical work done. But circumstances, over which I had not sufficient control, made it imperative for me to present the experiments at that early date. I was highly gratified, however, by the encouragement given me by a few of the many excellent men in this Society, and later on by eminent physicians of other societies, where I had the honor to read papers on the same subject. But, as usual, in such instances, by far the largest number of physicians who heard and read the reports were very skeptical, and some of them, without the least investigation, or with cursory examination into the question, passed severe criticisms and even attempted to break the force of clinical argument without justice or logic. To-day, I have the honor to report more than a year's work, covering all the results obtained directly or indirectly, by me by sero-therapy in consumption, in cases treated longer than three months, discharged, abandoned or dead.

To those of my critics who would or could see nothing valuable or scientific in the production of immunized horse blood serum in the treatment of tuberculosis, I beg to refer to the labors of Bernheim in 1890, who attempted the transfusion of goat blood in the treatment of pulmonary tuberculosis; Bertin and Picq, who in the same year tried the same thing in tuberculous rabbits; Coupard and St. Hilaire, who in 1891, injected dog serum in the trachea in pulmonary tuberculosis; Hericourt, who in the same year treated tuberculosis in man with dog blood serum; De Schweinitz on guinea pig immunization in 1894; Babés and many other European scientists who experimented with dog blood serum up to 1895; and, finally Maragliano, who increased the immunized property of the serum of the ass and treated patients successfully, and, announced that he had arrested tuberculosis in rabbits by the use of equine serum immunized, which was done precisely on the lines

followed in the work of your humble servant, began some years back, carried on irregularly afterward under extreme difficulties (with meagre laboratory facilities, precluding proper uninterrupted animal experiment), and practically applied in 1895. In discussing sero-therapy in tuberculosis, I will have occassion to refer to sero-therapy in diphtheria and other diseases.

At the outset, let me say that one must study very thoroughly the true cause of the principles underlying the cure of pulmonary consumption, to reason out the means by which serum or any other treatment may arrest this fatal malady.

One unfortunate result of bacteriology has been the establishment of the almost universal belief that pulmonary consumption is due exclusively to the bacillus of Koch; and that no other cause need exist in the system; that any human being with tubercle-bacilli in the system has for that reason tuberculosis of a serious character, irrespective of physiologic factors indicating and sustaining health and without regard to any pathologic conditions assisting in morbid developments. As a matter of fact, there is probably no human being wholly free from occasional contamination by the tubercle bacilli. Tizzoni has clearly proven by post-mortem examinations of beings killed accidentally, that, a large percentage af the human race who die from other causes have bacillary glands without the development of serious morbid phenomena. The germs of consumption develop and result in serious consequences in the tissues only when the soil is fit for their growth and nature's natural defensive forces are lowered. It is then that the fight for supremacy between the cells of the organism and the parasitic germs invading them, result in victory for the enemy and destruction and death of the body. This should be remembered in therapeutics.

If it has proven anything, sero-therapy has pointed out clearly that it is not as a germ-killer that serum acts in any disease, but as an agent physiologically antagonistic and capable of neutralizing in some other way, the effects of the poisons of the germs on the system. In diphtheria, it is clearly proven, that while serum does arrest the disease at once, germs remain in the throat many weeks afterward. It is evident that the serum in such a malady gives nature simply a chance to defend itself against the germs and their toxic products. So it is with other diseases which are treated with serum. The serum simply neutralizes the effects of the toxins in a preventive manner and thereby gives nature a chance to strengthen its forces and in time destroy the microbes that may invade it. Consequently, it will be obvious to all, that every case of tuberculosis can not yield alike to the serum treatment or any other treatment, and, that we must consider the disease, not only as to the action of the toxins of the bacilli of tuberculosis but also as to the toxins of other germs, and the ravages made in the tissues, such as infiltrations, nodules, softening, cavities and the various other lesions, which interfere more or less with the functions of the nervous system, respiration and circulation, and which once formed, are sufficient to lead to death independently.

THE IMMUNIZATION OF HORSES FOR THE PRODUCTION OF ANTI-TUBERCLE SERUM.

The principles underlying the condition known as immunity are two-fold, viz. those which underlie natural immunity and those which underlie acquired immunity.

Natural immunity may be complete, absolute, or it may be relative. When absolute, it seems to depend more on a certain deficiency in nutritive elements upon which the specific germs must feed and live, than on any other factor. Acquired immunity, which probably is never permanent, seems to depend chiefly, if not wholly, upon special defensive forces created for the occasion by nature in an organism invaded by pathogenous microbes or impregnated with their products. These special forces have been proclaimed as being two or three in number. The first of more doubtful nature to-day than it was some months ago, and not believed in now by most observers, is the product by the cells of the affected organism of an agent with the alleged power to neutralize chemically, the poison generated by the microbes living at the expense of tissue, blood and lymph. If Behring's law was formulated on this hypothesis, as the word antitoxin implies, it is not well founded, although its application is practicable and correct on other more probable grounds of immunity.

The second, and probably the true defensive force, better demonstrated than the former, is the increase in number and perhaps in the quality of the phagocytes, whose chief duty it is to destroy foreign microscopic organisms and their products, and, foreign particles and assist in the repair of organic breaches.

The third, theoretical and vague, is the increase of general vitality of the organism and the assimilating and disassimilating power of the cells of the body, a very important adjunct or assisting force, which in therapeutics as in experiments, should receive grave consideration. Such is the conclusion, I opine, one will usually reach after careful study of the reports of the foremost experimentalists and clinicians of the age, to this date.

The equine species possess a relative immunity to the germs of tuberculosis. While it is occasionally possible to produce experimentally local and rarely, it is said, a more or less extensive general infection in the horse and the ass, some of these animals react quickly to hypodermic injections of the tubercle poison itself, that is to say, the product of or substance forming the structure of the tubercle bacilli. Hence, there exists serious difficulties in the way of experimentally endeavoring to immunize equine blood for therapeutic purposes. Some of these animals are more deficient than others in the nutritive qualities necessary for the proper nourishment of the bacilli, and, consequently react poorly; others react much more to the toxins of the destructive germs; the result is that the so-called antitoxin produced varies according to the susceptibility of the animal treated with the toxins. Here arises one of the serious problems besetting all investigators in their efforts to establish a positive method of estimating the antitoxic, or more properly speaking, the therapeutic value of anti-tubercle serum. A horse failing to react to the toxins or to the dessicated bacilli (tox-albumins and other matters of or in the substance of germ structure) after two or three months of injections, may be considered immunized properly if one does not consider the pre-existing natural immunity of the animal, but its serum may be found comparatively deficient in therapeutic potency, for instance, in the power to increase phagocytosis, for, as stated before, it is the properly acquired immunity (long experience with which will force thorough appreciation) that produces the effect.

ive therapeutic agent. It is the same acquired potency which acts in diphtheria, tetanus, etc.

In the past, I expressed theoretically, the idea that possibly the natural serum of a horse, apparently antagonistic to the bacilli of tuberculosis, contained a natural antitoxin which was merely increased by immunizing injections, but I have almost arrived at an opposite conclusion on this point. The light shed more and more glaringly every day by the study and application of the Behring law and the studies of other biologic questions, in experiments and clinical tests, point strongly to the theory that therapeutic serum, whatever its chemistry or biology, is a physiologic element manufactured purposely by nature, if I may so speak, as a defensive power as above mentioned. This explains, in part at least, the rapid success clinically, without immediate bactericidal effects of the serum in diphtheria, particularly in the earliest part of the disease, and also of the comparatively quick success of the tubercle antitoxin in acute cases of pure tuberculosis, or tuberculous pneumonia, before extensive transformation or destruction of tissue, as will be seen further.

The immunized serum of the horse in tuberculosis is essentially due to the careful, continuous process of saturation of the system with tubercle toxins (and even the germs sometimes) without allowing the advent of any lesion or any serious constitutional disturbance or disease, and with the production of the least amount of poisonous waste matter in the blood. Other therapeutic serums are or should be produced on the same grounds.

Herein arises a very important question in the production of all kinds of serums which even advanced experimentalists would do very well to study more closely, and which those ignorant of the nature, physiology and pathology of the lower animals, meagerly equipped or wholly untrained for laboratory investigation, and who assume to try the production of antitoxin for use in the human system, must always find a dangerous stumbling block. It is a question, indeed, which forces on the mind of the profession the great risk that its members run of causing poisoning or of using ineffective, useless serums, and thus fail to save life when they depend on inexperienced sources for such products, for therapeutic purposes. There exists, as will be seen, really grave dangers in serum from incompetent producers. The health of the animal to be immunized must be positively ascertained, not only with reference to such fatal maladies as glanders, which only experts can safely diagnosticate in the early stages, but with reference to any indisposition or morbid conditions often very difficult to recognize, during which the economy will produce in the blood agents more or less deleterious, and which may perhaps be fatally poisonous when introduced into man's circulation. In my experience, the serum of an animal which has not even been touched except to make the diagnosis of his condition, sometimes produce in man fever, local erythema, urticaria, cellulitis and other untoward symptoms of a more grave character. These symptoms in the beginning of my clinical tests and last summer were more common because of our ignorance then on many problems bearing on the nature of serum, most of which are clearing up before persistent inquiry, instituted more scrupulously in the last few months. It must be that the blood of animals, whether immunized or not, sometimes contains substances of an irritant, poisonous character, possibly of the order of leucomaines or some special cellular toxic products, which are not rejected with sufficient rapidity, perhaps, by the usual channels of excretion. Hence the necessity of watching and applying proper hygienic measures and sometimes special therapy to animals under process of immunization, in which analytical and physical indications point to improper disassimilation. Naturally, one must have and should apply a good knowledge of the physiology and pathology of lower animals, to be able to judge of these conditions. But unfortunately, for the public and and for the profession, ignorance of veterinary science does not seem to deter those who are bent on revenue only, from the attempted production of organic, therapeutic agents, requiring for their preparation special training or fitness which they do not possess.

Realizing this important question in full force, we are doing more scrupulous work than ever in this line. In fact, we did not deem it so important in the beginning of our clinical trials because we relied too much on foreign experimentalists in sero-therapy, who proclaimed the *innocuousness* of serum; relied, too, on our first results which were so remarkably free from accidents as to have been misleading. We are now, I believe, deciphering some of the causes of certain objectionable symptoms that sometimes follow sero-therapy in *any* disease. The fact that more than fifty thousand injections of the serum I produce for the treatment of tuberculosis have been made in human beings with not a serious accident and far less a fatal result, which can not be said *of all antitoxins*, shows that it is not likely to do much harm, and the reports in given cases show its value in certain conditions. We will always find in sero-therapy, as in all other forms of therapy, susceptible organisms and idiosyncrasies which militate against the use of serum hypodermically, but they are not very common—there remains for these, rectal injections, the value of which I am not yet, however, ready to assure.

To recapitulate briefly then, the horse or other animal to be immunized should be healthy to begin with and watched daily and treated properly. The accomplishment of this is a matter depending on proper equipment and qualifications enabling the proper study and analysis and care of the animals to a degree of safety for the profession and the patients.

The health determined, the degree of natural immunity should be established. The natural toxic powers of the blood should be determined and the daily or less frequent immunizing toxin dose should be regulated, the quantity varying usually between 1 c.c. and 10 c.c. followed or not by bacillar tox-albumins, according to the indications, bearing in mind the reaction produced and the general effects on the economy, as evinced by thermal readings, the physical and chemic nature of the urinary secretion (when analysis is indicated), and by various symptoms which experience will reveal to the trained observer and experimentalist, all of which scrutiny we apply with strict diligence in our work.

We have purposely used, in the past, all of the tuberculins in the market and have reaped different results. Their strength varies according to their dilution and their source, and their use is not always wholly and uniformly reliable. To one conversant with the variability or strength in toxins of bacterial origin, it will be evident that to control a standard strength of antitoxin as exact as possible, one must

generate his own immunizing products. The necessity of this is enhanced by the fact that the bacilli of tuberculosis sometimes lose their virulence after certain generations and under certain conditions, and their alleged toxins are, consequently, absolutely useless. Therefore, after varied experiments and results we have abandoned the use of even the best commercial tuberculin except for experimental purposes and comparative studies, and we use only the products of home cultures of tested virulence.

It has been suggested by a few to use the ass or mule as superior to the horse for immunizing purposes. This is a mere fancy born on false therapeutic grounds and ignorance of the nature of these animals. Both the latter animals are by far more susceptible to certain microbic diseases than the horse. To glanders and certain other affections they succumb much more quickly, and to organic disease of the bones, skin and feet, they are frequent victims as compared to the horse. These maladies can not but make their serum more liable to dangerous results in man. On the other hand, there is no evidence to prove the superiority of the serum of these animals in any disease above that of the horse, which is generally much more healthy, and I believe the serum of the ass and mule less valuable because of their usually more pronounced natural immunity, and it is, as heretofore stated, the *acquired immunity* which produces antitoxin. In fact, one may try for months and fail to properly immunize the ass or mule. Similar failures sometimes occur in trying the horse.

The antitoxic property of the serum may be determined by its power to neutralize physiologically a given quantity of toxins of a given strength injected afterward in a rabbit or guinea pig, preferably the latter. A guinea pig weighing 500 grams dies within a certain number of hours when injected with a certain quantity of tubercle toxins of a certain strength from a culture of a certain age and kind, the exact details of which would require more time to explain and are not essential in a paper of this kind. Anti-tubercle serum that will neutralize this minimum fatal dose so that when injected it will not kill a guinea pig of 500 grams may be considered the unit of antitoxic value. But I can lay no rule on this question as yet. Our results are not definite enough or sufficiently uniform, nor have those of Behring, Maragliano and other investigators given as yet more satisfatory data. Owing to the variety of natural resisting power and natural immunity in the equine species, it will be at once apparent that the value of serum must occasionally vary also, and that much work is yet to be done to arrive at a uniform strength. However, with careful work one produces serum of generally uniform power. The European laboratories have accomplished nothing more than this as yet.

With respect to the use of serum in therapeutics, it is necessary first to test it on animals, in order to establish whether or not it contains the residue of the tuberculins used in the horse in producing immunity, or any other toxins. There is no chemic reaction known for this purpose. However, I may state here that these experiments, often repeated, have resulted in establishing the fact that ten days after the last dose of immunization no tuberculin remains in the blood of the animal, and, consequently, the serum separated therefrom is free from microbic toxins of this character. When, after some months of injection, the horse has ceased to react to the tuberculins for some ten days of increased doses of toxins, it is considered immunized and capable of assisting nature in arresting tuberculosis. It is not as yet practicable to test each specimen of serum in tuberculous animals to establish its therapeutic value on Behring's mathematical law concerning antitoxin. For one reason it takes too long to get reliable results from tests on already affected animals. Behring has not himself as yet applied this law satisfactorily to tubercle antitoxin. We must depend on the knowledge that a certain number of days after the last reaction, and after the last immunizing dose, leave the serum with an average strength and a certain freedom from toxicity, which can be enhanced by laboratory processes and on the serum's neutralizing power in its action on tuberculin in small animals. It is to be hoped that the labors pursued in various parts of the world will, in the near future, establish a more positive method of determining the antitoxic value of anti-tubercle serum. So far, notwithstanding the unreasonable demands of critics, we must be content with the results obtained with immunized serum in clinics, as well as in animal tuberculosis. Various series of small animals have been under treatment and at the time of this writing some are still under treatment to decipher various points bearing on this question, but as yet we are not in a position to make any definite reports. It is not too much to say, however, at this stage of our work, that anti-tubercle serum is based on truly scientific grounds and has just as much right to exist and be considered by the profession as any other antitoxin, taking into consideration, however, the lesions existing in tuberculosis, which are quite different from those existing in other diseases treated with serum, with the exception of leprosy and syphilis. The serum for the latter two diseases is not estimated nearly as exactly as the anti-tubercle serum, and yet it is used in man.

The occasional charges that anti-tubercle serum is not well founded is childish. When human beings recover from consumption by the use of a remedy that does not harm, it is sufficient evidence of its scientific value to warrant its use, and it is manifestly unfair to try and dissuade one on any technical ground from considering it, particularly when nothing else can be offered to the unfortunate consumptives that has recoveries to its credit and improvements in even desperate conditions.

THE PROPERTIES OF SERUM.

Bearing on the whole subject of sero-therapy in any disease, we may profitably consider briefly the various properties, physiologic and therapeutic, ascribed to serum. The former consists of: The coagulating property, the toxic property, and the globulecide property.

The Coagulative Property. It has been established that the blood of one animal introduced into the circulation of another may cause an intra-vascular fibrinous clot, as has been proven by Héricourt and Hayem.

The Toxic Property. The serum in its natural state is often toxic and produces veritable symptoms of intoxication of different kinds, and fever, as I have often observed and mentioned before. Fortunately, most of these undesirable and dangerous elements may be prevented by proper treatment of the animals and the serum itself. One may add to this, the poisonous condition of serum after muscular exercise which is sometimes great.

The Globulecide Property (which produces oligocythemia and oligochromemia). The globulecide property of serum, of any kind, is a question of great importance in medical practice and little considered by the practitioner. It is a property which in large and carelessly administered doses may cause the destruction of thousands of red cells on being introduced in the system, and one which only technical experience can eliminate from the serum. This power may, in a few hours, according to the dose administered, reduce the red cells in the blood to the number of many thousands per cubic millimeter and prostrate patients fatally; but if the serum is given in very small doses at first and increased slowly, the diminution of red cells is imperceptible, and the increase is occasionally remarkable in a few weeks.

The therapeutic properties are as follows: 1, the bactericidal property; 2, the immunizing property; 3, the attenuating property; 4, the antitoxic property; 5, the stimulating property to organic defense.

The first named, the bactericidal property, which exists in certain serums is inconstant and can not be considered as possessing immunizing power, for it is destroyed, as explained by Dechalme, at 60 C., while the immunizing power remains at 70 C. Nor is the bactericidal property of a given serum a specific as a curative agent in a given germ disease, or as a force arresting the progress of a malady, because a certain degree of heat may destroy this bactericidal property and yet leave unaffected the so-called curative antitoxic property.

As to the third, the attenuating power, it was based on the misinterpretation of various results in experiments. It is now totally abandoned by the advanced laboratory technicians.

The fourth is the antitoxic (curative) power of which I have spoken above, the basis and understanding of which seem doubtful. It is very interesting now because the use of the word antitoxin so universally, has given origin to the belief that there can be produced in serum a chemic agent *capable* of destroying a bacterial poison.

Many have directed their efforts for years, in all parts of the globe, to establish the true chemic nature of the toxins and antitoxins, and all have failed. It is most difficult if not as yet impossible to establish facts relative to their chemic reaction when in presence of each other. But it has been demonstrated that while one may mix an antitoxin with a toxin in a test tube and inject thus with impunity a quantity of toxins that would be fatal if injected alone, a larger dose of the mixture always ends fatally. If a certain quantity of antitoxin could actually neutralize a certain quantity of toxins, a large dose of the mixture in the right proportions would not, by toxic effects, cause death. As has been pointed out, the venom of serpents being analogous to toxins and which can be rendered inoffensive in certain doses, otherwise fatal, by the mixture of antivenom serum in the same manner as diphtheria antitoxins, regains all its virulent power in the mixture when heated to 70 C., a temperature which destroys the serum but not the venom. This proves that there does not occur a chemic neutralization of the serpent toxin by the antitoxin. A serpent venom and a bacteria toxin are virtually identical. To what virtue then may be justly attributed the value of the so-called antitoxin in therapeutics? As already mentioned it is to the acquired force properly ascribed to serum known as the stimulating power of the defensive cells of the organism. Without discussing this in detail, it may now safely be advanced on the results obtained by Metschinkoff, Gabritschewisky, Issaeff, Calmette, that immunized blood serum stimulates phagocytosis to greater activity, which results finally in destroying the microbes. The cells probably destroy the toxins in their interior by the action of cellular diastase.

THE EFFECTS OF SERUM IN TUBERCULOSIS.

Since the beginning of our clinic tests of serum in tuberculosis, we have treated many different kinds of tuberculous processes. Tuberculous affections of the throat, lungs, joints, bones and bowels have been treated with this agent exclusively, pulmonary consumption of all varieties constituting the greatest number of the cases. We will consider, briefly, pulmonary tuberculosis.

This disease is the most prevalent form of tuberculosis, and, remarkable as it may appear, it seems to be the most frequently unrecognized and the most commonly misjudged condition until it is *too late* for human intervention to even arrest the progress of the disease. This is not so strange, however, when we consider the past, and even the present, erroneous and careless clinical teachings in many quarters of the land. The diagnosis of this malady and certain other diseases of the chest, which so easily confuse the physician's ear and mind, do not always receive sufficient attention. To begin with, the pathologic conditions of the lungs due to, or complicated by, the bacilli of tuberculosis alone or aided by other microbes are insufficiently weighed by the majority of physicians and too often grossly neglected by medical teachers in certain schools, too absorbed in their clientele to have time for exact clinical investigation and teaching. In the next place, the careless tendency to classify (either to please patients or to shift the grave and unpleasant duties), apparently trifling but really serious symptoms under the head of bronchitis, or the misleading name of catarrh, without proper investigation or observation, is too extensive. In the third place, there is too little exactness in the meager investigations usually made, bearing on the history of the patients, and as a result the beginning of the lung disease is often dated by the physician months or years after its true incipiency. The pathologic condition, which after examination of patients is termed incipient, is frequently in fact passed beyond the first or even the second stages. Indeed, I have seen tubercular unfortunates almost at death's door declared in the early stage of consumption by men of reputation. Finally, the exact nature of the lesions existing and the complications are not always given sufficient attention. As a result of this prevalent carlessness in diagnosis, the forms of treatment are faulty and the results thereof disappointing and discouraging. Patients are held under treatment for bronchitis or trivial affections for months, years, and sent away at last to some other climate to die of consumption. Or they are dosed with cough syrups, cod-liver oil and various nostrums, irrespective of conditions, until irremedial lesions are formed.

On the other hand, consumptives often seek professional advice only after irremedial lesions have been established. In our clinical experience *not a single case of incipient tuberculosis* brought to my notice have I had the opportunity of treating with the serum. More than 75 per cent. of all those who have honored me with their confidence more or

less completely, were in advanced disintegration locally, advanced prostration and emaciation generally, had tuberculosis dyspepsia of the gravest character, and many of them in fact were practically moribund. Desperately ill, often with desperate cavities, lung contractions, and lung tissue transformations, wrecked nervous systems, the unfortunates grasped the proverbial straw of the drowning man. It is chiefly from such hopeless cases, some of which are referred to me by physicians, as favorable and typical, that the results of sero-therapy have been established or criticised in my own clinical work, as well as in that of most other physicians, and many are to-day attacking sero-therapy from this basis. Not one case of chronic tuberculosis of duration shorter than one year from the real incipiency has been treated by sero-therapy to my knowledge, and yet, to my amazement, I find myself confronted by uncomplimentary remarks on sero-therapy in tuberculosis by medical men, considered competent, solely because of the failure of serum to cure moribunds, even after improving sometimes their weight and strength temporarily, which no other treatment has accomplished. Evidently there is a disposition to make it appear that a treatment of consumption must either accomplish miracles or must be considered as valueless.

This unwarranted position assumed by a few prejudiced persons, is evidenced by the efforts made in certain quarters, to depreciate sero-therapy in tuberculosis by proclamations of the number of deaths during this treatment, knowing well, or ignoring from lack of experience and medical knowledge, that no remedy can ever cure the class of tuberculous conditions in which the equilibrium of nature is utterly lost by virtue of irreparable lesions or constitutional disturbances. These efforts are unfair and small in the minds of broad-minded people. The effects of serum are not mystic or magic. They must be considered on the broad basis of physiology and pathology. It is a great injustice to patients and investigators alike, to reject any treatment of so hopeless a disease as consumption, simply because desperate cases can not be resuscitated.

That serum in any disease is entirely harmless is a fallacy, and that it is very dangerous is also a mistake, and that it has its advantages and disadvantages must be recognized by every physician who conscientiously practices medicine.

As I have said, it is well established that serum is globulecide. It destroys the red blood corpuscles to some degree if suddenly given in large doses, particularly if injected into the circulation. Hence the damage that may be produced on account of this effect, and the occasional death by collapse when the disease (dipetheria, say) has subsided. In tuberculosis if the serum is injected in animals or man in very small doses to begin with, say 0.5 to 1 c.c., once a day, for a few days, and then increasing very gradually to 5 c.c., and even to 10 c.c. per day, according to the results, the ultimate effect, with few exceptions, is usually not only to increase the quantity of the red cells but also to increase the strength and avoirdupois of the individual. In exceptional cases a feeling of depression occurs from the first days of injection and gradually increases. These, usually observed among the anemic, are unfavorable cases for sero-therapy by hypodermic injections and should not be kept under it, unless applied per rectum.

On the other hand, the white blood corpuscles increase enormously, hence the *increased power of phagocytosis which is the curative force in microbic affections*, but which, in tuberculosis can not be independent of the sustenance of the red cells.

The untoward local effects of serum injections for any disease are now fairly known. Erythema, exanthema, cellulitis, myelitis, articular pains and swellings, sero-infiltration of the connective tissue about the eyes, etc., have been noted by most observers on sero-therapy and are mentioned above. Beside this must be mentioned the occasional appearance of albumin in the urine. In tuberculosis I have observed before treatment, albuminuria more or less pronounced, without casts in about 11 per cent. of the cases examined in the last awelve months. Under sero-therapy the quantity of albumin did not increase except in two cases. On the other hand, I noted transitory albuminuria appear in three cases out of thirty-six, where it did not previously exist, but with no ulterior bad results.

One rare but alarming symptom that has occurred to me and others in sero-therapy is a sudden flushing of the face, apparently a serious disturbance of the vaso-motor system. It is seemingly due to some elements of or in the serum albumin as various tests to modify or extract this substance leaves the serum free from such a property. It has never proved serious in the fifty-odd thousand injections of anti-tubercle serum in human beings.

VARYING NATURE OF PHTHISIS, WITH RESPECT TO TREATMENT.

A fact singularly overlooked in medicine is the "unity without conformity" which exists in pulmonary consumtion. While all forms, at a certain stage, present symptoms in common, which are sufficient for a proper diagnosis, the lesions are often very different and the prognosis should be made accordingly. A dozen pathologic conditions may be found in pulmonary consumption: White granulations; yellow granulations; gray and dark granulations; gray infiltration (or catarrhal pneumonia); red hepatization; fibrinous nodules (blood residues); fibrosis; cretaceous masses; cavities; vesicular emphysema; tubercular pleurisy; complications of laryngeal tuberculosis; mixed microbic infections and perhaps others. These different conditions have varying importance, as well as have the degree of their existence in areas and intensity and the stage of the disease. With respect to constitutional changes, it is not logical, therefore, to expect uniform results in all forms of tuberculosis at any stage—each case must be treated on its merits. It is idle to expect sero-therapy or any other kind of specific therapy to arrest progress as easily, if at all, in a chronic case with contracted tuberculous lungs as in a case of acute tuberculosis with infiltrations. In each case there is a loss of vital capacity by virtue of lung alteration precluding the air from penetrating more or less extensive areas of obliterated lung tissue and oxygenizing the blood. In each case there may be high fever due to mixed or unmixed toxins manufactured in the morbid areas and absorbed by the circulatory system, but the patient with a contracted lung can scarcely ever hope to recover his health and can surely never have the transformed tissue restored to proper lung tissue; while the patient with lungs filled with the products of acute tuberculosis, as fatal as this disease has been heretofore, may sometimes be restored if treated before the breaking down of tissue.

In therapeutics, it is essential then to pay proper attention to existing pathologic conditions of the lungs before attempting to make a prognosis or to prescribe. As to mixed infections, they are so common in all forms of pulmonary tuberculosis, the question must always be present in the mind of the clinician.

I had hopes of touching on some of the numerous forms of tuberculosis in other organs than the respiratory apparatus, but my paper is already too long. I wish to state simply that in all of these, there may and there does usually exist at a certain stage, microbic complications of serious nature which must be considered and treated by special processes, which no specific treatment of pure tuberculosis is supposed to reach properly.

With these observations in mind, let us consider the results in one hundred cases treated by myself and others by the use of serum. In these you will see quite different results, according to the classes to which they belong, respectively. Some of the failures, as unavoidable as they must have been, in the hand of human beings not endowed with omnipotence, have been selected by certain physicians as evidences of the inefficiency of sero-therapy in tuberculosis. I condone nothing, I give you our success and failures.

REPORT OF CASES.

In the following report of cases treated in the last fifteen months exclusively by the use of serum, I mention partial improvements and failures as well as recoveries. But space and time fail me to give a detailed explanation of every case in the paper. In reading this report, one should take into consideration the stage of the disease and the lesions. Results must vary according to the nature of the disease and whether it was accompanied by high fever, extensive infiltration, etc., or whether the third stage or even what may be termed the fourth stage, had been reached with such conditions as cavities or contractions of the lungs or other pathologic phenomena demonstrating beyond a doubt that the disease had been existing a long time and altered the tissues of the organs affected beyond repair or had produced irremedial constitutional changes.

ACUTE TUBERCULOSIS.

Miss V. Z., East St. Louis, Ill., physician in charge Dr. J. L. Wiggins, East St. Louis, Ill. Consultants, Dr. J. R. Lemen, St. Louis, Mo., and myself. Miss V. had been ill several months and the last weeks previous to consultation she had been prostated in bed with a complete history of acute pulmonary tuberculosis. The range of temperature was between 103 and 104 continually for many weeks prior to treatment. The one microscopic analysis made by us demonstrated the bacilli of tuberculosis. Each physician consulted diagnosed acute tuberculosis. Every ordinary method of treatment was pursued and the fever remained at 104 and even reached 105, with symptoms of delirium, etc. On auscultation and percussion, it was found that the lungs were both largely involved and infiltration was nearly complete in one. Dispnea was excessively pronounced, weakness extreme. Prognosis fatal. Everything having failed, it was decided, after consultation between Drs. Wiggins and Lemen, to try the serum which I produce. The treatment began, I think, on June 9, 1895. The dose ranged between 20 and 40 ms. daily, and continued some six weeks more or less regularly. The result was that the temperature decreased gradually and steadily after seven days' treatment to normal temperature, which was reached on June 22, or thirteen days after the first injection. Injections were continued until the end of July. The patient gradually picked up, gained strength and flesh and is again at work. Her occupation previous to her illness was that of an actress. Since then she has been engaged in various pursuits in a clerical way and is said to be healthier than before. She weighs 132 pounds, whereas she was emaciated to at least 80 pounds before treatment. The germs of tuberculosis have disappeared entirely and every symptom of lung trouble is absent.

R. C. G., St. Louis, Mo., aged 65 (?); Dr. Simpsom was physician in charge; three consultants. Diagnosis of all was acute tuberculosis or tuberculous pneumonia, which was evidenced by acute pneumonia with almost complete infiltration of the left lung and extensive infiltration of the right. Prognosis, fatal termination. The patient at the beginning of treatment weighed between 150 and 160. Serum was continued about three months more or less regularly every day, after which it was administered irregulary for about two months. This patient suffered, before the beginning of treatment, with imperfect kidney secretion, and had to be injected with care accordingly. The microscopic analysis of the sputum was made first, I was assured, by Dr. Ravold, bacteriologist of the city board of health and of the St. Louis Medical College, and later by Dr. George W. Cale, of the Woman's Medical College, my brother, a chemist, and myself at the St. Louis Sanitarium before and at the beginning and during the course of the treatment and in every instance, until after some weeks of treatment, the bacilli of tuberculosis were found in quantities more or less profuse. The patient received injections of serum almost daily in doses varying from 10 to 40 ms. for about three months, and irregularly thereafter for a month or two more. At the end of three months no bacilli were to be found in the sputum, and repeated analyses made by the same analysts failed to reveal them. I am sure they are not to be found now. The patient, who was at the beginning of treatment in bed, picked up in flesh rapidly and at the last date upon which I saw him, in the month of December, weighed over 200 pounds. He is now traveling, visiting his children, and reports splendid health. There remains, however, in this case a pleuritic adhesion on the left side which is probably a permanent cicatrix lesion, and possibly of a fibrous transformation in the lower lobe of the same lung. This patient exhibited before and during treatment, and does yet exhibit to a slight degree, symptoms of asthma. He has returned to work and is able to attend to his duties as real estate broker and feels perfectly safe and happy.

Mrs. F., San Antonio, Texas, practically the same kind of a case as Miss V. Z., the first patient reported above, and the success was the same. She is well to-day.

These are the only three true acute cases of pure tuberculosis that have been treated with the serum to my knowledge, all three responding alike and are well to-day.

CHRONIC TUBERCULOSIS.

It is obvious that it is exceedingly difficult to establish an arbitrary line between the first and second stages and the second and third stages of pulmonary tuberculosis. Whoever may hear me or read this might for convenience sake include in the first stage all those whose conditions have not broken down the tissues or produced a marked constitutional depression or infection. This does not include incipient tuberculosis, which is earlier still and seldom brought to the physician, and far less the pre-tubercular conditions which the doctors seldom see. The second stage is exceedingly grave and other stages may be classed as usually hopeless and beyone remedy.

Mrs. H. R., St. Louis, Mo., consulted me in February, 1895. Her history was that she had had slight hemorrhages, had been ill for two years, had coughed and was coughing very severely and had expectorated previously a muco-purulent material, occasionally tinged with blood. The sputum at the time of examination was full of bacilli of tuberculosis and largely loaded with different forms of pus germs. Her attending physicians kindly acquiesced in her desire to try the serum. Mrs. R. at the beginning of treatment evidenced infiltration in the apex of the right lung between the third and fifth rib, covering an area of about four inches laterally and penetrating the lung, more or less through and through from anterior to posterior. There were mucous râles about the middle of this area, very pronounced, and interrupted breathing on both sides. The circulation was exceedingly rapid and fever ranged usually from 98 to 101 2-5, rarely it went above that. The patient had night sweats, had lost much flesh, being reduced to the weight of ninety pounds. During the first two or three months of her treatment there was illness in her mother's

family, in which a brother died of tuberculosis, and illness in her own family, one of her own children being confined to its bed several weeks, all of which conditions precluded Mrs. R. from getting sufficient rest and peace and nourishment, and all of which forced her to an excessive amount of worry and annoyance and labor. Notwithstanding this, however, on the regular dose of 30 ms. a day for three or four months and then irregular treatment every second, third or fourth day, with a loss of three weeks at one time, covering a period of six months all told, Mrs. R. improved in flesh to the weight of 132 pounds, and became strong accordingly, developed a splendid appetite, and for the last three months her sputum, which is exceedingly scarce now and comes only when she is affected by cold, exhibits no bacilli of tuberculosis. She suffered a miscarriage and six weeks illness recently, but her lungs remain apparently sound. The physical lung symptoms which existed at the beginning have disappeared, and so far as I can judge the patient has recovered.

Mr. E. D., St. Louis, Mo., age 36, occupation shipping clerk; history of glandular tuberculosis dating back eleven years. Had pneumonia four years previous to his examination in my office, May 16, 1895. Had been declining six months, had night sweats and fever, pain in left lung, back and front, pulse 108 at time of examination; abnormal temperature ranged from 99 3-5 to 101; coughed chiefly in the morning; expectorated a yellowish matter; slept fairly on the right side but could not sleep on the left side because of pain in the chest; was too weak to attend to his duties. There was marked dullness in the left lower lobe and crepitus of the left apex over a lateral area of four inches, extending about three inches downward, interrupted breathing, both sides. All these symptoms disappeared almost entirely in four months of treatment consisting of 15 to 30 ms. of serum a day. Examination of the sputum made since revealed no bacilli. Mr. D. is at work from twelve to fifteen hours a day, Sunday included, and feels strong and in good health and so far as can be judged by the absence of symptoms enumerated, he has recovered. He did not bear injections of serum well, being often upset, but he persisted and recovered.

Mr. F. S., St. Louis, Mo., came to me to be examined in February, 1895. He weighed about 145 pounds at the time. Had had very profuse hemorrhages at Hot Springs and was sent home considered hopeless; had lost about fifty-five pounds from his regular weight, which was above normal for his size; was coughing a great deal night and day; expectorated a thick, yellowish matter loaded with bacilli of tuberculosis and other microbes, and was rapidly declining and weakening. He was unable to perform any of his duties as a groceryman. His physical condition evidenced tuberculous affection of both lungs, particularly in the right, over the whole of which interrupted breathing was very plainly perceptible with loud rumbling. The lower half of the lung exhibited moist râles. The left was slightly involved in the same manner. These symptoms after seven months of more or less regular treatment, which consisted of 20 ms. in the beginning and was increased to 30 and 40 and once in a while to 60 ms., almost entirely disappeared with the exception of a slight interrupted breathing. Flesh was regained to the amount of 170 pounds and strength seems to be as good as ever. Mr. S. is now and has been for four months attending to his usual duties, working hard every day and complains of nothing. He expresses the opinion that he is free from disease. In this case there was a slight cavity formed and expectoration has not entirely disappeared, and once in awhile bacilli of tuberculosis are found, and yet his condition of health seems to be generally improving, and in my judgment, his condition has been arrested by the serum and is held at bay by it and the assistance of natural forces. I will have occasion to refer to this case again, inasmuch as health seems to be restored and the bacilli of tuberculosis are still present, which seems to sustain the idea that anti-toxins do not kill germs but chiefly neutralize the effects of the results they produce by increasing natural forces.

Mr. F. B. M., St. Louis, Mo., age 20; occupation railroad clerk, working at night; had had bronchitis at the age of 14; had suffered from night emissions from early puberty. Previous health feeble; cough scarce; pain in the lower lobe of the left lung; temperature 99 to 100 F. Physical examination evidenced dullness of the lower left lobe beginning at a line drawn below the nipple and extending down toward the base. Microscopic examination revealed the bacilli of tuberculosis not in large numbers. Mr. M. was treated from May 27, 1895, to the middle of September, practically four months. All physical symptoms and evidences of tuberculosis have disappeared. He is now at work as before and apparently in good health. No bacilli have been found in the examinations made since.

Mr. G. N. F., St. Louis, Mo., was examined April 29, 1895; age, 45; occupation, bookbinder. Had had a dry hacking cough two years; had had pneumonia at age of 18; congestion of lungs two years previous to his examination. Feb. 7, 1895, he had hemorrhages which dragged him to bed, and at the beginning of treatment he weighed 130 pounds; expectoration thick and yellowish; bacilli of tuberculosis numerous. Temperature 99 3-5 to 101 and 102; infiltration of the left apex below second rib about three inches downward and four inches across, evidenced both anteriorally and posteriorally; dullness over same region; crepitus over some of the area and râles and crackling on deep inspiration extending below left breast anteriorally. Mr. F. was treated with tubercle antitoxin from the beginning of May until the beginning of October, almost every day at the dose of 30 to 40 ms. Since then several examinations have been made and no germs of consumption are to be found. On the other hand, physical symptoms had at the time of my last examination practically all disappeared and there is little, if any, expectoration whatever. The patient has resumed his work and considers himself cured and I consider the disease arrested. He weighs to-day 140 pounds, which is more than his normal weight before his illness. He has been attending to his usual duties several months.

Miss S., Nashville, Tenn., was admitted to the Sanitarium in May, 1895, and remained there under treatment some three months. She came with a written diagnosis of pulmonary tuberculosis from her family physician, which was substantiated by microscopic and physical examination. The bacilli of tuberculosis were found in large numbers and the patient was rapidly losing ground both in weight and strength, coughing considerably, particularly at night, and expectorated occasionally a yellowish matter and sometimes a greenish matter. Night sweats had existed and fever ranged from 99 to 102 F. She was treated with serum at doses ranging from 20 to 30 ms. After three months she had gained ten pounds. She then migrated to Las Vegas, N. M., where she continued the treatment, and her improvement continued. She, at first, lost flesh there, but again increased and every vestige of symptoms seems to have disappeared, if I may judge from the reports sent me. The bacilli and all physical signs of lung disease have disappeared. Bacilli have not been present for over two months. The disease in Miss S. is considered arrested, I judge, by her attending physician and she considers herself cured.

Miss G. A., St. Louis, Mo., age 19 years; occupation, music and vocal student; had had influenza in Memphis six years before, dry cough for a year; weighed 123 pounds; hemorrhage four years previous to examination, Sept. 26, 1895; larynz infiltrated; temperature from 99.5 to 101; coughing considerable and expectoration in the morning of a yellowish matter. Bacilli of tuberculosis quite numerous. Heart disease evidenced by regurgitation. Treatment began the last day of September, 1895. Injected very small doses on account of her heart condition, that is, 10 to 25 ms. daily. At this time Miss A. weighs 135 pounds. The bacilli of tuberculosis have disappeared. For two months there was but one or two in the field of bi-monthly examinations. Cough has almost entirely disappeared. Strength has been regained and appetite is splendid. This patient is considered as having almost if not practically recovered, as there exists no longer the physical signs of infiltration, and the first signs of breaking down which existed at the beginning of the treatment are absent.

Mrs. N., Chicago, Ill., age 33, has a family of six or seven children; began treatment at the Sanitarium May 19, 1895, and continued at the institution under the treatment for a period of two months, at which time she went away and later reported as being free from disease, her expectoration having ceased and her cough being *nil*. This patient had been ill two years, had had pneumonia, following an operation for hemorrhoids. Having had no opportunity of making an examination since this report I am unable to verify it with personal data.

Mr. V., employed at our institution, a patient under the charge of Dr. L., had laryngeal tuberculosis and pulmonary tuberculosis. His condition had been declared, in writing, hopeless by a number of specialists in St. Louis, including all the leading ones. He has been treated under the special care of Dr. L. and occasionally myself for a period of about ten months, having received from 30 to 120 ms. a day. At the beginning of his treatment there existed infiltrations of the larynx and other lesions; he had lost his voice, weight and strength. He was in a hospital, unable to perform any work. He is now assisting in the care of some twenty-two horses in company with another man, working many hours every day in water and dust, and his appetite has improved and his strength keeps good. He is sensitive and susceptible to colds, but under the treatment of serum he had gained a condition which permits him to do all the manual labor that can be asked of almost any man. Rarely

have we found bacilli in the scant expectoration during the last four months. I am unable to say more of this case because of the fact that he is not a patient of mine and I do not see him regularly. I report him because he is under my supervision and the injections are done by my assistants or myself. The case is surely under control at present. Some physicians pronounce him practically cured.

Mrs. A. C., age 26, married, has had three children and two miscarriages, one recently. At the age of 12 she received a kick in the chest, at which point pain appeared frequently and whenever the patient contracted cold. At her examination infiltration was discovered over an area of about three inches in diameter on the right side below the breast, also a dulness in the left lung between the second and third ribs, extending about two inches downward and about two inches laterally. She had had the various symptoms of tuberculosis for some years and dated the accidental incipiency of it fourteen years previous when she had received the kick at a spot where the consolidation occurred. She had had several hemorrhages. The active development of the disease dated three years previous to my examination, which occurred June 7, 1895. At that time she weighed 115 pounds, to-day she weighs 135 pounds. She had dyspnea, expectorated a great deal, coughed almost incessantly, had a very poor appetite. Now all these symptoms have disappeared and her strength has increased so that she is able to perform her daily duties. She comes to my office almost daily and expresses herself as improving continually. The physical signs above mentioned have disappeared to a considerable extent, although not completely. Pleuritic lesions exist beside the consolidation mentioned. Bacilli of tuberculosis have been found but once in very small numbers in the last three months and this was long ago.

SURGICAL TUBERCULOSIS.

B. McG., age 18 years 2 months, had been suffering with joint and bone tuberculosis for seven years and had ten operations performed on different parts of his body to open abscesses and to remove necrosed bone. The seat of the primary trouble was the right hip-joint, but was giving him trouble on every limb. The left tibia was much involved, having at one time eight openings discharging tubercular pus. The hip had three openings that would heal and open alternately and one that was open continually for seven years. He had an abscess on each arm, one of the sternum, one of the index finger of the right hand, a tubercular nodule in the skin of the scrotum, an abscess near the apex of the left scapula and two on the lower jaw. The patient says that after the continued efforts of Dr. J., of Waverly, Ky., who had as consultants, Drs. H., of Henderson, Ky., and A. J., of Sturgis, Ky., to cure the patient had failed, it was decided to let nature take its course. He was without medical aid for two years. In the fall of 1894 he was put in care of Dr. Broome, St. Louis, who performed an operation to remove necrosed bone from the thigh and tibia, thinking that these openings would heal. This having failed he decided to try the serum treatment and was taken in charge by Dr. G. W. Cale, St. Louis, Mo. He began the treatment in March, 1895, at which time he had four abscesses discharging a characteristic tubercular pus and two others that afterward opened. He had daily injections of serum in doses of 20 to 30 ms. and at the close of six months' treatment five of these abscesses had closed, he had gained ten pounds and was without temperature. He is working steadily and is still gaining weight. The last and only opening, a very slight one, is on the thigh and dead bone (to be soon removed) has been located which is the cause of its remaining open. Up to the present date he has gained sixteen pounds, has a good appetite and is enjoying good general health.

In every one of these cases the diagnosis was based on careful physical examination and microscopic analysis and there was no mistake made. I may add to this record of good results:

Mr. K., pulmonary tuberculosis eight years, in last stage of the disease; cavity in one lung; contractions and infiltrations in tissue. Had been injected three months in vain with tuberculin; gained over twenty pounds with serum and all symptoms have so improved that he has returned, in part, to his work as insurance solicitor. He was treated eight months almost daily.

Miss H., stenographer, had been invalid two years; disease in second stage; regained ten pounds and about normal strength in four months and to-day seems to be on the high road to recovery.

Mr. M., grain dealer; disease in third stage; increased eight pounds and in strength, and is enabled to keep to his work by continual treatment.

Mr. W., printer, disease in the second stage; increased over ten pounds and exhibits no bacilli and has exhibited none for three mouths.

Mr. O., stationary engineer, was ill several years; exposed to alternating heat and cold; disease in the third stage; treated seven months; regained his strength sufficiently to keep up his arduous duties, which he must have abandoned long ago.

Of the twenty-two City Hospital cases reported a year ago, I have been able to keep track of but two. Most of the others scattered after leaving the hospital improved. One with a cavity, extensive infiltrations, adhesions, displaced heart, was raised from bed, increased thirteen pounds and returned to work in six months during the exclusive use of serum. He then died suddenly at the City Hospital after a liquor debauch and I did not have the opportunity to see the post-mortem examination. The other, a case of over three years, Mr. H., with advanced tuberculosis, was likewise raised from a bed of sickness over a year ago and has almost ever since been working as a stable man and seems to be fairly healthy and strong.

I might add to this series of improvements a number of others in a more or less serious condition who are still under treatment by the exclusive use of serum, but besiring to report no case too early after positive improvement, I will abstain from mentioning them specifically until later. I might add, too, a number of desperate cases, among which a few were benefited temporarily. Probably all such cases, and the cases with large cavities, with a history of long standing tuberculosis will succumb. It is usually in the last stage that patients submit to new treatments for consumption, and it is often in the same stage that doctors are willing to try new remedies of this character. These unfortunates (with contracted lungs, large cavities, hopeless transformation of tissue, general infection, etc.) who grasp at this treatment as a last resort, can hardly be expected to recover permanently, although some of them do improve, and in a few the disease seems to be checked. In my practice, I do all in my power to prevent hopeless cases from using the serum, although it is not unfair to try and prolong their life with it, if at their own request, understanding fully the consequences, they demand a trial. The injustice of discrediting the value of serum on the results obtained in such cases is obvious to any unprejudiced and fair minded man.

In conclusion I will state that of one hundred cases of pulmonary tuberculosis treated from three to eight months, during a period of fifteen months, the following results have been obtained:

In the first stage, treated, recovered and discharged,	14
In the second stage, improved, in statuo quo, or still improving or checked (including thirteen who returned to their duties after having been considered hoplessly ill and near their demise)	26
Disappeared from observation in all stages	35
Died; treatment begun in second stage	5
Died in the third and fourth stage, including ten practically moribund, who insisted on trying the treatment	20
	100

Thus the recoveries in the early stages have amounted, so far, to 100 per cent.

Penalty for Criminal Malpractice. A new though practically amendatory section was introduced into the criminal law of Missouri in 1895 which provides that every person who, without intending necessary medical or surgical treatment, and without intending other injury than the destruction of pregnancy, shall kill any woman by administering to her any medicine, drug or substance whatever, or by using upon her any instrument, or other means for the purpose of destroying pregnancy, shall be guilty of manslaughter in the first degree.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES.

REPORT OF THE COMMITTEE ON SYLLABUS.

CHICAGO, Feb. 15, 1896.

A committee was appointed by the secretary of the Association, Dr. Perry Millard, on each of the branches of a medical curriculum in 1894. These several committees made reports which were presented at the meeting of the Association at Baltimore, May 7, 1895. The several reports were referred to a committee consisting of Drs. Perry Millard, Howard A. Kelly and Bayard Holmes, and ordered printed.[1] On account of the various standards used by the several committees, it was found impossible to coördinate this work so that a well-balanced course of study could be recommended. Therefore during the past year a plan was formed by the present secretary for the study of medical education in conferences. The work was laid out so that each conference would have a special part of the curriculum to consider.

In order to call together representative men and educators ten institutions were requested to send delegates to the first meeting. The call was addressed as follows:

My Dear Doctor. The Association of American Medical Colleges has now arrived at practically the following condition of things: Nearly half of the medical schools in the United States are members of this Association, and more than half of the schools in which regular medicine is taught.

All members of this Association will hereafter require four years of attendance for graduation.

The minimum year of schools in this Association will consist of six months, the average year of eight months and the maximum probably of nine months of actual study.

The entrance requirement is now fixed at the minimum, equal to about the second year of the ordinary high school course, and that requirement will probably soon be equal to the average requirements for admission to the literary department of colleges and universities.

The amount of study which any student of a medical school can be reasonably expected to do is fixed by pedagogic experience, and is four recitation hours a day, requiring each about an hour and a half of study for preparation.

It is very desirable in this formative period of education that the discussion cover the most desirable course of study, the most desirable methods of presenting each branch and the most desirable methods of testing the attainments of the students and giving them credit for their work.

Therefore the secretary of the Association of American Medical Colleges, with the consent of the President and Judicial Council, hereby calls upon the colleges to furnish representatives to a number of committees, to meet at suitable points and on suitable occasions to discuss these subjects and present a combined report at Atlanta next May. On account of the number of subjects he proposes to divide the curriculum into three groups.

Group 1 will be composed of all those branches that treat most exclusively of the normal human body.

Group 2 will consist of all those branches which consider most exclusively the diseased human body.

Group 3 will consist of all those branches which deal with the treatment of the diseased human body and the prevention of disease.

Three committees will be appointed, each consisting of as nearly ten persons as possible, one committee for each of these groups. Each committee will discuss the following topics: 1, the amount of time and the amount of work for each branch in this group; 2, the place in the four year course in which each branch in this group should appear; 3, the particular work *required* in each branch and the amount of work allowed to be *elective;* the particular work suggested by the committee as most desirable out of which to fill up the elective portion; 4, the methods by means of which each of these branches should be presented to the students; 5, the methods and means by which each student should be tested and given credit on each branch.

In order to begin this work the committee of ten upon Group No. 1, in which will be found anatomy, physiology, histology and embryology, is hereby called to meet at the Palmer House upon Saturday, the 15th of February, 1896, at 9 A.M. The University of Minnesota, the University of Michigan, the University of Iowa, the University of Wooster, the Lake Forest University, the Northwestern University, Cincinnati College of Medicine and Surgery, Columbus Medical College, Detroit College of Medicine, Fort Wayne College of Medicine, are requested to send each a representative, to remain in the city three days at least, and hold a continuous meeting until the work is finished.

If your institution will coöperate in this work be kind enough to inform me by return mail and suggest the person whom you wish to represent your university upon the committee.

Trusting that I may hear from you by return mail, I am,

Very truly yours, BAYARD HOLMES.

The conference convened at the Palmer House at the hour mentioned with the following representatives present:

W. S. Hall, Northwestern University; W. E. Lewis, Cincinnati College of Medicine and Surgery; A. P. Ohlmacher, Wooster University; C. B. Stamen, Fort Wayne Medical College; Bayard Holmes, College of Physicians and Surgeons, Chicago; J. E. Brown, Ohio Medical University; W. D. Middleton, Iowa State University; H. O. Walker, Detroit College of Medicine; W. O. Gross, Fort Wayne Medical College; Thomas G. Lee, University of Minnesota.

The conference was called to order by the Secretary of the Association and the plan of conducting the business decided upon.

As a preliminary step to the arrangement of a curriculum the committee considered it expedient to recommend the use of certain terms in a more or less technical sense, thus avoiding misconceptions and facilitating the expression of ideas on the subject.

The Recitation Period.—A recitation period is the time occupied by the student in the preparation and recitation of one lesson. The time spent in a recitation is nominally one hour, and usually a topic assigned for a recitation requires about one and one-half hours of outside preparation. Let the expression "recitation period" be understood to mean two and a half hours' work. From this it is clear that a laboratory exercise requiring two hours of laboratory work and one-half hour of outside reading and preparation of notes is equivalent to a recitation period. Further, each didactic lecture involves, or at least should involve, a parallel course of supplementary reading assigned by the lecturer. In order to introduce uniformity into all the courses let it be understood that the assigned outside study accompanying a lecture course be equal to one and one-half hours for each one-hour lecture. In the same way a two-hour clinic should be made to consume in the aggregate an extra half-hour of work, either in reading up parallel cases, in taking and recording of histories or in the examination of pathologic material, for every two hours of actual work in the clinic.

By thus putting all work on the basis of the recitation period of two and one-half hours, the work of arranging a typical curriculum is much facilitated.

As to the number of recitation periods which should constitute a week's work, the discussion brought out many arguments. In the first place the medical colleges of to-day are for the most part the evolved product of those of yesterday when a year's work was crowded into five or six months, and a whole medical course into two or three of these short years. Under the earlier conditions as much as seventy-five hours of

[1] Report of the Committee on Syllabus, JOURNAL AMERICAN MEDICAL ASSOCIATION, June 29 and July 6, 1895.

mental work, 30 recitation periods, was accomplished by the diligent student in one week. But the extension of the course of study to more than three times its original length has not been accompanied by a sufficient relief of the tension of work to admit the student of average strength to carry the course without manifesting signs of overwork. Most literary and scientific colleges require from 14 to 16 recitation periods per week of each student. Most medical colleges require from 20 to 30 recitation periods per week. The committee agreed that because of the greater maturity of students in medical schools, and the fact that a larger proportion of the work is "low-pressure" work, in laboratories and clinics, medical schools are justified in requiring 20 recitation periods per week. This represents fifty hours of work per week for the student. It is recommended that as far as may be these 20 periods be assigned to five days with 4 periods each. Somewhat more work than this may be permitted in special cases.

What shall constitute a year of work? Most of the institutions belonging to the Association of American Medical Colleges have seven or eight months for a year's work, a few have only six, while others have as many as nine months. The committee agreed, that their work would be most useful if they based their recommendations upon a year of thirty weeks, of 20 recitation periods each, or an aggregate of 600 recitation periods. A college having only six months (twenty-five weeks) could attain about the same aggregate by requiring 24 recitation periods per week, while a college having nine months might well reduce the required number of recitation periods per week to 18. Such a reduction of quantity would naturally be accompanied by an improvement in the quality of the students' work.

Another very convenient expression is the term *year hour*, which is defined as *one recitation period per week throughout the year*, or *30 recitation periods*. But the number of recitation periods would depend upon the length of the year in any particular institution and might be 25 or 36 according to the length of the year. In any case the number of year hours multiplied by the number of recitation periods per week should equal 600 recitation periods.

It was further concluded by the committee expedient to divide the year into a Winter semester and a Spring semester of 300 recitation periods each.

The committee then considered the division of the four years of study now required by all members of this Association among the branches of study which it considered should be contained in the medical curriculum. This necessitated the consideration of the preliminary education of the student and the required and elective work.

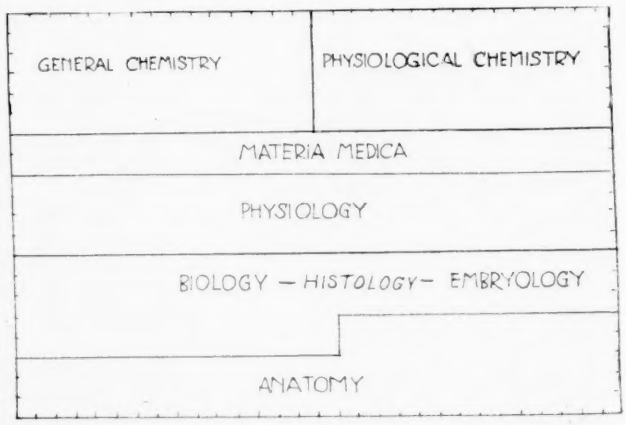
It was assumed that the students of our institutions are fully up to the requirements of the Association and possess a good knowledge of English, a thorough training in arithmetic and elementary algebra, a thorough training in elementary physics by the laboratory method, at least two years' work in Latin; but that they have had in a majority of cases no preliminary training in chemistry or biology.

In preparing students for medical study teachers should aim at a serviceable knowledge of English and English literature and a definite command of the English language in composition. Thesis work on topics with which the student is engaged should be strongly insisted upon, and every attention should be paid to forms necessary for the guidance of the printer. The work in arithmetic should be so thoroughly completed that it would become an unconscious tool in the mind of the student, and it should be combined with a thorough knowledge of the metric linear, square, cubic and liquid measure and with the metric weights. The algebra should be sufficient to cover simple and quadratic eqations. The course in physics should be much more extensive and thorough than that proposed by the committee of ten on secondary school studies, and published by the Bureau of Education (pp. 25, 26 and 117-127). It should be a careful course in experimental physics in which the student should prepare his own apparatus, conduct his own experiments after such a plan as that outlined in John Trowbridge's "The New Physics," or in similar works in the same pedagogic line.

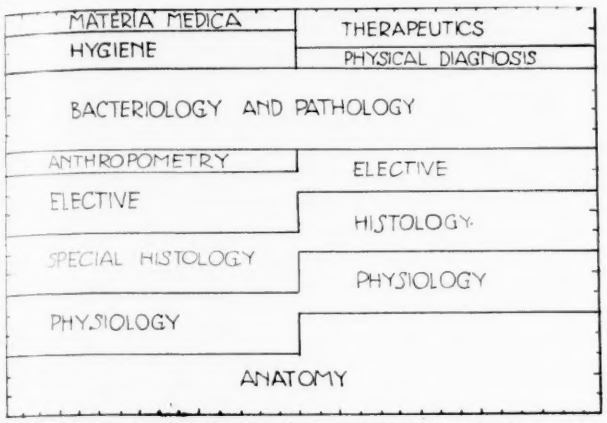
The Latin should be studied from the philologic rather than the literary side, as so little is expected.

In regard to electives, the committee urged that all colleges allow a small margin of electives to begin in the second year and that each college make this work cover such branches as it is able to offer in the best quality. The value of even a small proportion, say five one-hundredths, of elective work in increasing the quality and spirit of all other work, can not be over-estimated when the resources of the school are such as to permit. Properly conducted the electives allow a choice of work adapted to the needs or inclinations of the students, while at the same time a larger number of medical teachers are given opportunity to devise and offer work some of which may be found of the greatest educational or professional value. Teachers may thus be discovered and methods of teaching thus be made known and the quality of teaching in the whole school greatly improved.

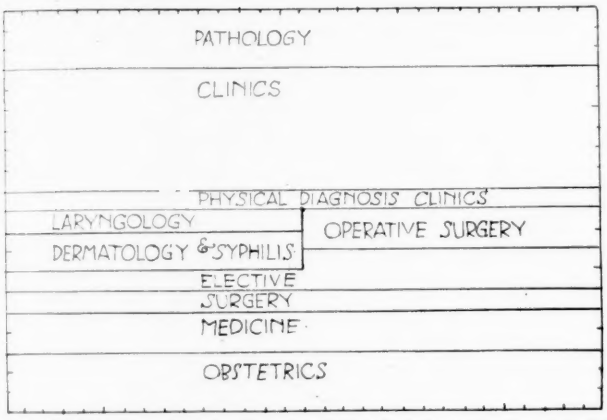
The following diagrams express the ideas of the committee on the proportion and disposition of the curriculum for the four years of the medical course. It will be noticed that chemistry and medical chemistry are crowded into the first year. This expresses the sense of the committee after very careful discussion. The committee holds that chemistry should very soon be required by the members of this Association for admission. The same may be said of biology or comparative anatomy. The high schools, academies and colleges now teach chemistry and biology by the laboratory method, and it will not long be necessary for medical colleges of the first class to teach either chemistry or biology.



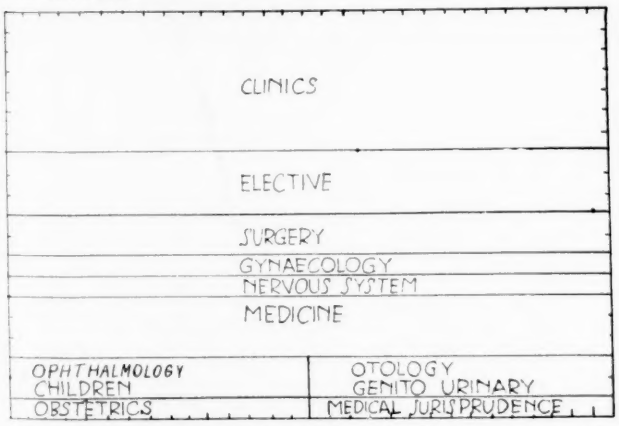
1.—Diagram showing the distribution of the 600 "recitation periods" of the first year. The lateral divisions represent thirty weeks, the vertical divisions the twenty "recitation periods" each week. The first half of the materia medica should be pharmacognosy and the other half pharmacology.



2.—Diagram showing the distribution of the 600 "recitation periods" of the second year.



3.—Diagram showing the distribution of the 600 "recitation periods" of the third year.



4.—Diagram showing the distribution of the 600 "recitation periods" of the fourth year.

ANATOMY.

The ground now covered in the course in anatomy is in accordance with the ideas of the committee. The separation of regional and surgical anatomy does not seem necessary or desirable.

This branch was relatively well taught in the older medical colleges, but improvements have not been made as fast as the importance of the subject demands. The study of vertebrate morphology is a prerequisite to the proper study of human anatomy. The time which anatomy receives in the diagram above is three recitation periods a week during the first semester of the first year and five recitations a week during the second semester. Each of these recitation periods would consume two and a half hours of the students' time. The first semester may be devoted to the study of osteology. Every student should have the bones for his own use. The simpler parts of the skeleton should be studied first. The study of any bone should consist in a thorough study of every aspect of the organ with every pedagogical appliance. Drawings should be required in the various positions necessary to bring out all the parts. These drawings should at first be made from the object and later from memory. Only such features of the bone should be studied as the bones themselves present. Muscular attachments and the relation of other structures can not ethically or pedagogically be considered until the student sees the parts in position in the anatomic laboratory. In every possible way the teacher should maintain in the minds of the students the proper anatomic perspective and lead them to a vivid and indelible idea of the essential points. There ought to be an opportunity in every class exercise for students to propose questions. The recitation between the teacher and the students should be familiar and unrestrained.

The second semester of the first year should be spent in the dissecting room. This should be so fitted up as to be light, clean and commodious. The character of the dissections and laboratory study will depend not only on the motive and method of the teacher, but upon, and essentially upon, the proper preservation of the cadaver, the proper furniture of the laboratory and the proper equipment of the student with thoroughly good dissecting instruments, drawing books, note books and laboratory garments. A good workman must have good tools. In the dissecting room the muscles, nerves and vessels and their relation to the bones should be most carefully studied during the first year and all the dissections should be made so that these organs may be studied together. The bones should be at hand and the relations of parts studied and recorded by drawings. The muscles, for example, should be studied on the body, their separate offices demonstrated and their attachment recorded on the bones previously used. The blood and nerve supply should also be discovered and recorded on the drawings and sketches which each student should be required to make. Incidentally and in a general way the viscera should be carefully studied during the first year.

During the first half of the second year the careful study of the viscera should be begun. In this work it will be necessary if not desirable to use the organs of vertebrates for each member of the class in his laboratory examinations while the instructor will demonstrate from the human cadaver. All the important viscera should first be demonstrated in situ, then the organs of animals should be studied as detached specimens, and last of all each student should carefully dissect during the second semester the whole human body, making drawings and notes just as in the dissections of the first year.

During all this anatomic study the perspective of the subject should be carefully maintained by the teacher through demonstrations, recitations, quizzes and written exercises. The actual contact of the parts is of the greatest educational value and the use of dissecting gloves by students should never be countenanced. The necessity for a name should be felt by the student before he is required to learn a name. Anatomy should be a synonym for familiarity with the human body. Much attention should be devoted to the comparative study of the organs in the living human body. For this purpose students should be encouraged to use one another as subjects in the

class. In this course, little place is left for didactic lectures and much attention is devoted to doing with hand and eye. Manual dexterity is acquired by the student on the dead body.

It must not be forgotten that any method of teaching which secures in the student a rational curiosity and provides a way for *him* to satisfy *it* is a success, while a much better method so used as to paralyze the student's curiosity while it secures ever so good a command of the anatomic nomenclature is a failure.

Any text-book is good enough if it follows or accompanies the careful dissection of a well preserved cadaver in a well furnished laboratory.

A library of anatomic works should be in the dissecting room. A list of very desirable literature will be found in the August, 1895, number of the *Bulletin* of the American Academy of Medicine, pp. 273–276.

BIOLOGY, EMBRYOLOGY, AND HISTOLOGY.

Inasmuch as biology is an essential introduction to the subjects comprehended in the usual medical curriculum, and since but a small proportion of students present themselves with the knowledge of this subject upon entering the medical school, this committee believes that it becomes the duty of the medical school to supply instruction in elementary biology until the entrance requirements are raised sufficiently high to include this branch. The object of this biologic work should be to serve as a natural introduction to the study of the normal and diseased human body, and not to make zoologists or botanists of medical students. Most of this work can be presented by the object method in the laboratory, and as an outline of the work the following plan is submitted.

Course A. Elementary General Biology.—This course will serve to introduce the student to the use of the microscope, to elementary microscopic and laboratory methods, and to acquaint him with a broadened idea of the phenomena of life in animls and plants. As types for study in this we recommend ameba, paramecium, vorticella, hydra, and earthworm on the zoologic side; and protococcus, yeast, bacteria, spirogyra, and molds on the botanic side. It is hardly to be expected that the teacher will be able to present all of these types in a given period and substitutes will doubtless be found necessary in certain cases.

In the laboratory exercises each student should be supplied with a microscope, and with simple equipment sufficient to enable him to independently prosecute all the technical work demanded. The laboratory exercises should be guided by simple directions such as are found in the "Practical exercises" of Huxley and Martin's Practical Elementary Biology. Free hand drawing from the object should be systematically demanded of every student in the class. Simultaneously with the laboratory work a reading or recitation course should be provided in which Parker's Elementary Biology will serve as an excellent text.

Course B. Elementary Vertebrate Anatomy.—Following Course A, in natural order, and serving as an invaluable introduction to descriptive and practical human anatomy, comes a laboratory study of several typical vertebrates. An elaborate study of comparative anatomy is impossible in the limits of a medical college course and it is expected that this course will prove mainly useful to the student in perfecting him in methods of anatomic laboratory study, while it incidentally familarizes him with the anatomy of the animals chosen as types.

This study should be pursued almost entirely in the laboratory by the aid of a suitable laboratory manual; and a comparatively thorough study of one or two types should be encouraged instead of the cursory examination of a number. By means of suitable equipment the student should make such preparations as wet and dry skeletons, vascular injections, and preserved specimens. Numerous free-hand drawings made directly from the objects are to be required. As types for the work we recommend the frog, as studied after the directions in Huxley and Martin's Practical Elementary Biology, and one mammal, the rat, the rabbit, the cat or the dog.

On account of the convenience with which each student can handle his material, and on account of the greater delicacy of the dissections we consider the smaller mammals preferable, and for this purpose the dissection of the rat as prescribed by Martin and Moale in Vol. III of their Handbook of Vertebrate Dissection is especially recommended.

Course C. Embryology.—During the spring months when eggs can be easily obtained, and upon completion of courses A and B, the study of embryology should be begun. The foundation for a study of this subject is furnished by practical laboratory exercises.

The most convenient type for introductory study is the embryo chick which should be studied after the plan outlined in the "Practical Suggestions for studying the Development of the Chick" given in the Appendix of Foster and Balfour's Elements of Embryology. A series of whole embryos of characteristic stages of development are to be studied by the student, in the egg, both as fresh transparent objects, and as opaque objects. A series of typical sections are now to be prepared *by the student* from the material *which he has obtained* and preserved, and at this time the technique of killing, hardening, imbedding and sectioning for microscopic study can be acquired. Mammalian embryology can be introduced by several laboratory exercises upon the embryo pig or sheep. These embryos can usually be obtained in abundance from slaughter houses.

In connection with the laboratory work in this course we would prescribe reading or recitation exercises from some text-book, for example, Marshall's Vertebrate Embryology, Minot's Human Embryology, or Hertwig's Text-book of Embryology. Marshall's work will be found especially adapted to the laboratory course just presented, while the works of Minot or of Hertwig more properly serve as reference books for advanced students.

Course D. Histology.—In connection with Course A the student acquires a familiarity with the use of the microscope, and an elementary knowledge of the animal and vegetable cell both in unicellular and multicellular organisms. At this time also an acquaintance with simple microscopic technique is obtained.

Following that portion of Course B in which the frog is dissected the special study of elementary histology may be introduced. With the aid of such methods as teasing, maceration, dissociation, and possibly with some free-hand sectioning, the student should study the simple histologic tissues. A few of the more easily applied reagents should be employed by the student in his work upon the material which he obtains from his frog. Great weight should be laid upon the thorough mastery of the technique involved in this work, which is a step higher than that employed in Course A. A great deal can be done in the

study of the blood, epithelium, connective tissue, muscle and nerve, and even of some of the organs with a very simple laboratory equipment and easily acquired methods, and we believe it the duty of the laboratory teacher to impress this upon the student. The directions for histologic study in connection with the laboratory work upon the frog in Huxley and Martin's Practical Elementary Biology may with certain modifications, be taken as a guide for this portion of histology.

The study of histology proper may be suspended in favor of Course C in which the more elaborate technical methods of microscopic anatomy are introduced, along with the subject of histogenesis.

Upon the completion of this elementary course in the first year's work, the study of special histology as applied particularly to the tissues and organs of the human body should be pursued. This is the work in histology which we would prescribe for the second year's course, and with students already trained in ordinary laboratory methods, it will be possible to include more of the special and advanced methods of histologic research.

Here also each student should be provided with a full working outfit and it is expected that *all of the preparations demanded in the course are to be made by the student from the raw material which he obtains himself* or which is furnished to him by the teacher. These laboratory exercises can best be guided by type-written or mimeograph syllabi prepared by the teacher to cover each given lesson, and in these syllabi brief technical instructions should be supplied together with a few hints as to the observations to be made by the student, and the prosecution of technical details and the detailed study of the object should be left to the student. Drawings directly from the preparations should be demanded throughout the course and full descriptive notes should be prepared by the students.

As a supplement to the laboratory exercises in histology the students may be referred to one or more of the standard text-books upon histology, and in some special subjects it may be found advisable to introduce a few lectures.

This department ought also to possess a working histologic library. Text-books ought not to be used at all. The student should be referred to the library for the further study of the problems presented to him in his laboratory work.

THE COURSE IN PHYSIOLOGY.

The course in physiology should be continued through two years and should be in a general way coördinated with the course in comparative anatomy and general biology and histology. By coördination in this connection is meant the arrangement of the courses in such a way that the student shall learn first the more fundamental and general and then the more special. To teach the student the physiology of the liver one year and the gross and minute anatomy of that organ the next year must be recognized by all as an inversion the logical order. To teach the anatomy of an organ one year and its physiology the next year puts the teachers of both these branches at considerable disadvantage, and the chances are great that the student will have a less clear comprehension of the subject presented in this way than he would if the interval elapsing between the study of the more general branch and the more special branch be a short one. Examples of coördination will be found in the arrangement of the following course in physiology:

Every course in physiology should be accompanied by laboratory exercises in which the student may familiarize himself with the technique of the subject and may demonstrate for himself the more fundamental facts of this science. The laboratory exercises should be coördinated with the recitations and demonstrations as far as it is possible to do so.

The first half of the first semester (eight weeks) should be spent in a study of the physiology of the cell as illustrated in unicellular plants and animals. While the student is studying the morphology of the protococcus, the yeast cell, the ameba and the paramecium in the biologic course he may profitably study the physiology of these organisms from such a text as, "The Cell" (Hertwig), and should repeat in the laboratory the experiments mentioned in Hertwig's book. "Allgemeine Physiologie" (Max Verworn, Jena, 1895) is a valuable help to the instructor who is conducting such a course.

The second half of the first semester should be spent on muscle-nerve physiology. Having already studied the reaction of ameba and paramecium to electricity, and having studied, in general histology, the structure of muscle fibers and cells, and nerve fibers and cells; further having made careful dissections of frogs and other vertebrate animals the student is in a position to comprehend and appreciate the reaction of muscle-tissue in response to various direct stimuli and to indirect stimuli applied to the nerve. The frog-heart and the "muscle-nerve preparation" are most used for such experiments. A convenient text to follow in the laboratory exercises is "Sterling's Practical Physiology."

Beginning with the second semester or second half of the first year the general subject of nutrition should be begun. Whether one introduces this field of physiology with the study of the circulatory system or of the digestive system is a matter of little consequence. The problems of the circulation being, for the most part, physical problems, would seem to justify the consideration of that subject first, followed by the respiratory system, which presents simple problems in mechanics, physics and chemistry. The student, having in the meantime made some progress in physiologic chemistry, is able to comprehend the general features of the chemic problems involved in digestion, and should now enter upon a systematic consideration of the nutrition: 1, food and foodstuffs; 2, preparation of foods; 3, mastication; 4, deglutition; 5, salivary digestion; 6, gastric digestion; 7, intestinal digestion; 8, absorption; 9, distribution; 10, assimilation or anabolism; 11, katabolism and animal heat, and 12, excretion. This course will propably consume the second semester of the first year and a part or all of the first semester of the second year. The remaining time allotted to physiology should be devoted to the physiology of the nervous system, the physiology of the special senses, and the physiology of reproduction. All of these courses should be accompanied by laboratory work. The laboratory manual already mentioned has exercises in all of the above subdivisions of the subject (except in reproduction).

After the student has completed the above required courses he should be given an opportunity to elect special courses in physiology during the second semester of the second year and during the third year. Profitable elective courses would be, for example: 1,

physiology of intrauterine life, following Preyer's "Physiologie des Embryos;" 2, special problems in the physiology of digestion, following Brunton in "Handbook for the Physiologic Laboratory;" 3, physical examination of the blood, using hematokrit, hemometer, corpuscle counter, micrometer, and staining methods; 4, experimental physiology of the central nervous system, following Cyon; 5, physiologic psychology, following Wundt or Ladd. The instructor may get much help from such works as: Cyon's "Methodik der Physiol. Experimente;" Gscheidlen's "Physiologische Methodik;" Foster and Langley's "Practical Physiology; Schenck's "Physiologisches Practicum;" Brunton and Burdon-Sanderson's "Handbook of the Physiological Laboratory;" McGregor-Robertson's "Physiological Physics;" and Langendorf's "Physiologische Graphik."

THE ORGANIZATION AND EQUIPMENT OF THE DEPARTMENT OF PHYSIOLOGY.

Inasmuch as many of the colleges of the Association have not yet established physiologic laboratories, it is thought well to give a few general hints on the subject. The imposing equipments which one sees in the physiologic institutes of Europe, equipments which, in the aggregate, have cost many thousands of dollars, overawe one and make one hesitate to advise the undertaking of so great a task, so we are letting the years slip by without establishing physiologic laboratories. We must not forget that the equipment of European laboratories is a growth which has covered many decades; and further, that it is really advisable to allow a department to grow, collecting, in the course of a few years, an equipment which is perfectly adapted to the wants of the institution and to the special methods of the head of the department. The committee strongly advises the early establishment of physiologic laboratories, even if an institution can not appropriate for the purpose more than $1,000 to start with. If an institution can devote to this department a well-lighted general laboratory room 36 ft. to 40 ft. square, with two or three small rooms for instrument room, workshop and library, and can appropriate $1,000 to $1,500 for the first equipment, then a laboratory fee of $5 annually from each student who works in the department will, in the course of a decade, produce a sufficiently full equipment for all practical purposes.

At this point it may be well to give a hint as to the organization of the department, as this determines largely the character of the equipment and the number of duplications of each instrument.

The amount of personal supervision required by the student in practical physiology is so great that it is inexpedient to attempt to conduct large classes. A demonstrator and one assistant demonstrator can not properly supervise the work of more than thirty students at one time, even though each student be provided with a laboratory manual. In the organization and equipment here planned let it be understood that the laboratory class work in *sections* of thirty students each, and that each section be subdivided into ten *divisions* of three students each. Now, experience in many laboratories has shown that a student will accomplish practically as much in one laboratory period of three hours as in two laboratory periods of two hours each. The three-hour laboratory period promotes economy both for the student and for the department. Following this arrangement, two instructors would be able to supervise the work of 180 students, meeting one section of thirty students each day. With this allotment of time each student would have three hours of laboratory work each week during the year, which would enable him to demonstrate for himself all of the fundamental principles of physiology. In the question of the choice between, 1, the condensation of 180 hours of laboratory work in physiology into a period of sixty days with three hours per day, and 2, the distribution of the same number of hours over sixty weeks (two years) with three hours per week, and its coördination with the theoretic work in physiology and with the courses in gross anatomy and histology we would, without a moment's hesitation, decide in favor of the latter plan.

If this general plan of organization be adopted, and if the department wishes to provide for sections of thirty students, working in ten divisions of three students each, then the apparatus should be duplicated in tens. The following list of apparatus is suggested as a practical one with which to make a beginning:

EQUIPMENT FOR GENERAL LABORATORY WORK.

10 strong tables, 8 feet by 2½ feet, at $7.50	$75.00
10 kymographions, at $30	300.00
20 Daniell's cells, half gallon size, at $3	60.00
4 pounds of copper wire, No. 16, double cotton cover, at 60 cts.	2.40
½ pound copper wire, No. 26, double silk cover, at $2.50	1.25
10 bichromate cells, medium size, at $3	30.00
10 simple compasses (for detectors) at 30 cts	3.00
10 mercurial keys, at 50 cts	5.00
10 contact keys, at 60 cts	6.00
10 DuBois keys, at $1 50	15.00
10 Oxford rheochords, at $2.50	25.00
10 Du Bois-Reymond, induction machines, at $15	150.00
10 Pohl's commutators with crossbars, at $2	20.00
10 pairs of muscle forceps, at 75 cts	7.50
10 pairs of tambours, at $4	40.00
20 heavy-base stands, with fixtures, at $2	40.00
10 Bunsen burners, at 25 cts	2.50
10 bell jars, at 80 cts,	8.00
10 double-valve rubber bulbs, large size, at 75 cts.	7.50
5 hemometers (Fleischel's), at $15	75.00
5 sphygmographs (Dudgeon's) at $20	100.00
5 blood corpuscle counters (Zeiss) at $15	75.00
General surgical appliances, forceps, shears, etc	50.00
Assorted sizes of glass tubing	5.00
Assorted sizes of soft rubber tubing	5.00
Rubber stoppers, assorted sizes, perforated	2.00
Corks and cork borers, sheet cork	2.00
Files, "knife-blade" for cutting glass tubing	2.00
Glassware, gas generators (2), graduated cylinders, pipettes, flasks, bottles, beakers, etc	50.00
Granite iron troughs and basins, assorted sizes	10.00
	$1,174.15

NOTE.—About one-third of this outlay can be saved by having five divisions of the section work on one problem while the other five divisions work on a related problem which involves other instruments. That would reduce the absolutely necessary equipment to $800.

INSTRUMENTS FOR SPECIAL USE AND DEMONSTRATIONS.

1 galvanometer	$50.00
1 metronome	4.00
1 hematokrit	5.00
1 plethysmograph	2.50
1 pair quantitative balances	30.00
1 pair dog scales	15.00
2 pairs medium scales for students' use	10.00
2 mercurial manometers for blood pressure	10.00
2 Ludwig rheometers	10.00
1 moist chamber	20.00
1 capillary electromometer (Kuhne's)	5.00
1 Du Bois-Reymond rheochord	25.00
1 contact clock	10.00
2 chronographs	20.00
	$266.50

This list might easily be extended to amount to several thousand dollars, but it is intended here to include only those instruments which seem necessary to start with.

THE WORK SHOP.

Demonstrators and students can easily construct, in a shop, many pieces of simple apparatus, which if purchased of some instrument house, would amount to many times the cost of the material and would deprive students of some very valuable experience. Frog, rat, rabbit and dog holders may be made, the tambour frames may be furnished with membranes and mounted as receiving or transmitting tambours, cardio-

graphs, or stethographs. All writing levers, electrodes, etc., should be made by the students. A room with bench and vice and $25 for carpenter's and machinist's tools would be an ample start.

A FEW NECESSARY CHEMICALS.

20 pounds $CuSO_4$	$1.30
10 pounds H_2SO_4	.70
5 pounds mercury	3.30
5 pounds bichromate of potassium	.75
5 pounds kaolin (for electrodes, etc.)	.25
2 drams of curare	2.50
5 pounds gum damar	1.25
20 pounds benzol	4.00
[2 per cent. sol. of damar in benzol makes the best fluid for fixing tracings made on smoked paper.]	
10 pounds chloroform (imported duty free)	5.00
30 pounds sulphuric ether (imported duty free)	9.00
20 pounds surgical cotton at 25 cts.	5.00
2 pounds sealing wax in sticks	1.00
1 pound mercuric chlorid	.80
2 pounds carbolic acid	.70
5 gals. abs. alcohol	
2 pounds sodium hydrate	
2 pounds magnesium sulphate	
2 pounds sodium chlorid (pure)	
10 pounds glycerin	
1 pound hydrochloric acid	
1 pound nitric acid	
1 pound ammonium hydrate	
	About $50.00

A WORKING LIBRARY OF PHYSIOLOGY.

Beside the laboratory manuals enumerated under the "Course in Physiology," we mention a few journals and general works that should be in every laboratory of physiology: Hermann's "Handbuch der Physiologie"; *Journal of Physiology*, ed., Michael Foster, Cambridge, England; Pflüger's *Archiv f. d. gesammte Physiologie*, Bonn, Germany; *Archiv für Anatomie und Physiologie*, [physiol. part] ed., Du Bois Reymond, Berlin, pub., Veit & Co., Leipsig; *Centralblatt für Physiologie*, pub., Franz Deuticke, Leipsig; *Journal of Experimental Medicine* [physiological part edited by Bowditch, Chittenden and Howell], D. Appleton & Co.; "Animal Physiology," Mills, D. Appleton & Co., 1889; "Text-book of Physiology," Michael Foster, Macmillan, 1888–93; "Human Physiology," Landois and Sterling, Blackiston, Philadelphia, last edition; "Refraction and Accommodation of the Eye," Landolt, Lippincott, Philadelphia, 1886; "The Frog," Marshall, London, 1894; "Anatomy of the Frog," Ecker, Oxford, 1889; "The Cat," Mivart, Scribner, 1881; "Dissection of the Dog," Howell, Holt & Co., 1888; "Anatomie des Hundes," Ellenberger & Baum, Berlin, 1891; "Dictionary of Medicine (4to), Gould, Blackiston, Philadelphia, 1895.

Beside these there should be recent representative manuals of histology, general biology, embryology, chemistry and physics.

PHYSIOLOGIC CHEMISTRY.

It has been taken for granted that the chemic problems of physiology will be assigned to the department of chemistry. The equipment of that department makes such a division of the subject highly advantageous. For years urine analysis has been taught, usually in the second year of the course in the department of chemistry. Many of the stronger institutions have long since expanded the second year course in chemistry into a very creditable course of physiologic chemistry, beginning with an investigation of foodstuffs, following this with qualitative and quantitative work on the chemistry of digestion, and devoting the last semester of the second year to the analysis of urine. The best laboratory manuals on this subject are: Sterling's "Practical Physiology" (first part); Long's "Laboratory Manual of Chemical Physiology," Colegrove & Co., Chicago, 1895; Halliburton's "Essentials of Chemical Physiology," Longmanns, Green & Co., 1893. The physiologic library should contain also: "Text-book of Chemical Physiology and Pathology," Halliburton, Longmanns, Green & Co, 1891; "Physiologische Chemie," Bunge, Vogel, Leipzig, 1894; "Lehrbuch d. physiologisch. Chemie," Neumeister, Gustav Fischer, Jena, 1893; "Physiological Chemistry," Hammarsten, Wiley & Sons, New York, 1893; "Physiological Chemistry of the Animal Body, Gamger, Macmillan, 1893; "Chemical Physiology and Pathology," Hoppe-Seyler.

(To be continued.)

REPORT OF A CASE OF GALLSTONES.

BY T. R. MOSS, M.D.

DYERSBURG, TENN.

My reason for presenting this report is the obscurity which enveloped the diagnosis as well as the long train of unpleasant symptoms in its history. I do not arrogate to myself the ability to teach this intelligent body, but hope to learn something from the discussion which will prove beneficial. Through the kindness of my friend, Dr. N. S. W., on May 24, 1895, I was called with him to see Mrs. J. M. B., who had been ill about two weeks. She was brought up to know nothing of the blightings of poverty, but had every want gratified, and moved in the topmost social circles. She weighed 230 pounds, and was 41 years of age. She lived a sedentary life and as a result was troubled with constipation. Aside from this her health had always been perfect, except that about eighteen months previous she had an attack lasting ten or twelve days with symptoms of biliary obstruction. She enjoyed to a high degree the good things with which she provided her table at all times and on the date the present attack began partook quite heartily of the midday meal, eating among other things freely of cold slaw. Two hours after this she was seized with an intense pain in the epigastro-hypochondriac region extending back under the right scapula, from which in some degree she was not free for several months. The pain did not continue severe all the time, but there was a constant burning as if a coal of fire had gotten into the stomach, which was very much intensified on taking food or drink of any description. This burning and pain was accompanied with vomiting, severe and persistent, made worse by irritation from ingesta, but coming on at intervals when nothing at all was swallowed. It consisted mainly of acid glairy mucus in which at long intervals were intermingled minute specks of blood. Dr. W. stated that prior to my first visit no elevation of temperature had been observed and on this occasion the mercury registered only 99½ degrees Fahrenheit. Examination revealed a very tender and painful spot on pressure just below and to the right of the ensiform cartilage. No tumor could be detected. The pain, tenderness and persistent vomiting suggested the possibility of gastritis, which Dr. W. had under consideration. Jaundice was present, but not nearly so marked as it became later on. The temperature began to range higher, the pain and vomiting persisted, no kind of treatment seeming to give even temporary relief. In the course of a few days Dr. S. of Memphis was called and after a very careful examination gave as a diagnosis, hepatitis. By this time the jaundice was more marked and deep palpation indicated engorgement and sensitiveness to pressure in the liver. While Dr. S. favored the idea of hepatitis which might become sup-

purative, yet he related an instance where a patient without symptoms to particularly indicate such result developed malignant disease. The symptoms continued without abatement, rigors occurring but no sweating except that which came as the result of antipyretics. A few days after Dr. S.'s visit he was communicated with by telephone, when he advised aspirating the liver for pus. His presence was desired but he could not come. The persistency of the pain in the same locality, the obstinate vomiting, the rapidly increasing jaundice of the conjunctivæ, skin and urine, clearly indicating the presence of bile in abundance, the pyrexia, rigors and absence of bile in feces, connected with the sudden onset suggested to Dr. W. and myself the possibility of biliary obstruction. Therefore on the morning of June 13, we administered six ounces of olive oil and in the afternoon of the 14th there were several alvine evacuations heavily charged with bile. We regret the discharges were thrown away before a careful search was made for calculi. The diagnosis still being unsettled Dr. Rogers of Memphis was telephoned for, but was sick. Dr. A. B. Holder, his worthy associate, came up on the morning of the 15th and after a most thorough and critical examination advised an exploratory operation for the purpose of ascertaining the cause of trouble. Accordingly preparations were made for operating instanter. An incision was made over the region of the gall bladder and that organ partially exposed. On account of the superabundance of adipose tissue it seemed almost like going down into a well in order to reach the point desired, and when the gall bladder was found, it was adherent to the surrounding parts and could not be brought well up into the wound. It was contracted and of semi-solid consistency. This semi-solidity in the doctor's opinion amounted to a "stony hardness." The sensation as given to my touch, however, was that as stated above.

The contracted condition of the gall bladder, the "stony hardness," its fixedness and the apparent absence within its cavity or in the ducts of calculi seemed to preclude the advisability of further operative interference. After palpation and inspection, and as a matter of precaution introducing the aspirator with negative result, the liver was thought to be normal, and therefore hepatic abscess eliminated. Considering the trouble irremediable and most probably malignant, Dr. Holder so announced and proceeded to close the opening. The patient bore the operation splendidly and re-acted well. There was at once a decided amelioration in the symptoms, the temperature ranging below 100 F., the pain not so severe, the vomiting more infrequent, the dejecta continuing to show the presence of bile, the urine rapidly losing its saffron hue, and the skin and conjunctivæ gradually assuming their normal appearance. At the time it was difficult to divine whether the change was due to the olive oil on the 13th followed by bilious discharges on the 14th, or the operation on the 15th with the manipulations necessary to the same. Competent observers say that aspiration of the liver, though no pus be found, is often followed by improvement, hence this might be the reason. On the other hand occasionally calculi are entirely liquefied and not discovered with the most careful search. The latter seemed the most plausible. After several back-sets attended with high fever in which quinin was freely and effectively used, she finally became able to sit up a short while each day. This was done with a great deal of distress as the nausea was very much aggravated and a "stuffed feeling" and sense of heavy weight was much more pronounced on assuming the erect position. The desire for food became stronger so that on August 28 she ventured to indulge to a very limited extent at the midday meal. During the afternoon the pain returned, but radiated in every direction so that it was mistaken for ordinary colic and a simple remedy administered. It failed to give relief and as the pain grew more intense, an opiate by hypodermatic injection was resorted to. On the morning of the 29th a rigor occurred, and the temperature ran to 102. Later in the day another rigor, and the temperature rose to nearly 105 F. The urine became loaded with bile, the conjunctivæ and skin rapidly assumed a deep yellow, the lips and finger tips were cyanotic, the facial expression pinched, and the pulse 130. Dr. W. was sick and I was left alone. I gave antipyretics with baths and immediately began the rectal administration of quinin 100 grains in the twenty-four hours. This was kept up several days. In this way the temperature could be somewhat controlled. On lessening the amount of quinin the temperature would rapidly increase and upon its resumption would again subside. Hence this heroic dosing was justified. Saturday morning, August 30, I gave six ounces of olive oil by stomach, which was retained and in the afternoon of the 31st she passed a gallstone about the color and size of a hazel nut. This was like an oasis in the desert, and temporarily there was a change for the better. Everybody was inspired with hope, but the irritable stomach remained, great mouthfuls of mucus and saliva would collect, the vomiting persisted and it seemed beyond the ingenuity of man to suggest a form of nourishment which could be retained. To this was added an aching in the limbs, most prominent in the left arm and leg, with a burning in the bottom of the feet. These symptoms, with extreme hot weather, conspired to make our patient devoutly wish for death. This continued until hope was again nearly extinguished, when to our dismay the pain grew more intense, the stomach again became if possible more irritable, the vomiting of glairy mucus more frequent, and the skin, urine and conjunctivæ indicated the resaturation of the blood with bile. The bowels being constipated, I administered a C.C. pill improved, and the next afternoon was rewarded by finding a second gallstone, larger than the first. During the interval between the passage of these stones, a considerable quantity of inspissated bile was passed. From the passage of the last stone the improvement was slow but continuous until the feeling of fullness, pain and discomfort had entirely disappeared, and she could eat anything she desired with impunity. The skin, urine and eyes cleared—and flesh began rapidly to accumulate. The suffering in the limbs did not entirely cease, but with this exception perfect health seemed about restored, when March 18, 1896, she was again seized with pain and burning exactly as before with a temperature of 103, but no vomiting. Jaundice made its appearance within twelve or eighteen hours and every symptom pointed to a return of the original malady. Eight ounces of olive oil were given within a few hours and was followed by a whitish, pasty stool the next day. Several ineffectual efforts were made as manifested by pain for the stone to be forced through the duct. Full doses of calomel followed by salines, phosphate of soda, and C.C. pills improved, each were tried, but the

feces still showed an abscence of bile. Evidently the cessation of each paroxysm was caused by the stone slipping back into the gall bladder as the burning and most of the tenderness disappeared with the pain. The attacks came from two to four hours after the midday meal, when more food was taken and hence a greater demand for bile to aid in its digestion. The tertian type of intermittency, which the paroxysms assumed, excited the suspicion that in some way a malarial element was a factor in the causation. Therefore I saturated the system with quinin and on the night of the 28th gave two C.C. pills improved. On the morning of the 29th a third stone was found, similar in size and color to the others.

Because of its effect on the catarrhal swelling as well as a relaxation of the duct walls, I suspect the quinin was an important factor in aiding the expulsion of the stone. I may be subject te criticism here as well as at other points in my paper. At the time of this writing the patient is again rapidly convalescing.

You can readily see the diagnosis in this case was not easily settled, and because of this the interest became very intense to those directly concerned. The history of perfect health with the exception mentioned, the free indulgence in cold slaw, and the sudden onset of pain a short while after, the vomiting, the burning so persistent and severe that an ice bag was kept over the epigastrium constantly for three weeks, the foul breath, the rapid, small pulse heretofore not mentioned, pointed with so much positiveness to gastritis that it was perfectly natural that this should be considered. There can be no doubt about the presence of an acute gastro-duodenal catarrh resulting from irritation to surrounding parts of the impacted gallstone. This catarrh came near costing our patient her life through its interference with the nutritive process. Hepatic abscess frequently forms in such an insidious manner as to deceive if possible the very elect. I remember a case occurring in Bellevue Hospital under the service of E. G. Janeway, which had been mistaken for a remittent form of malarial fever, and I call to memory just now a case in the practice of a country physician where an old man of 70 developed the history of abscess of the liver, but a diagnosis to that effect was not made. Finally rupture into the lungs took place, and death from apnea was the result. Again, in my own practice, as a sequel to an attack of dysentery an old man of 60 presented the symptoms of suppurative hepatitis with the exception that instead of bulging there seemed to be a retraction of the right hypochondrium. The aspirator was not introduced, and the patient died without rupture or a verification of the diagnosis. In the case under consideration the symptoms suggestive of inflammation and later suppuration in the liver were: 1, climate; 2, the free indulgence in rich, highly seasoned food; 3, sedentary life with constipation; 4, gastro-duodenal catarrh; 5, jaundice; 6, pain and tenderness; 7, fever and rigors. On the other hand, suppurative inflammation of the liver is rare in women, and the pyrexia and rigors are usually attended with profuse sweating. Jaundice, to a marked extent, is generally absent, and when present is *per se* not a valuable diagnostic symptom, depending as it does on a catarrhal swelling of the bile ducts or pressure on these ducts from accumulation of pus. Pain is not so acute or suddenly developed, as a rule, unless associated with a local peritonitis. The question of malignancy was the one which gave us most concern. Bartholow says: "When at or after middle life, in a patient with a history of former attacks due to gallstones, there begins a fixed pain in the right hypochondrium and subsequently retention jaundice, the existence of a malignant growth in connection with the cicatricial tissue and ancient organized exudation should be suspected, and this suspicion will be confirmed if subsequently a tumor can be felt." Again, "and especially are organized exudations the favorite seats of cancer, new formations, those for example about the gall bladder and cystic duct resulting from repeated attacks of passage of calculi." The persistency of the pain, the history of a former attack, the contracted and adherent gall bladder, and the vomiting, age considered, presented an array of symptoms suggestive of malignant trouble, yet the slow development, the fawn or bronze color of the skin, prior digestive disturbances, a peculiar cachexia and the existence of a tumor were conspicuous by their absence. Having taken a running survey of the premises, what are the indications pointing to gallstones as the source of trouble? 1, climate; 2, gallstones are more frequent after 40 years of age; 3, women are especially liable to them, the ratio as compared to men, according to Thudicum, being three to two, and according to Cyr four to one; 4, sedentary life and indulgence in the pleasures of the table; 5, the history of a similar attack, though of shorter duration, preceded and followed by uninterrupted good health; 6, the abrupt onset with the characteristic pain, followed shortly by jaundice indicating biliary obstruction which had not the time to form outside and occlude by pressure, but must be inside the duct or ducts, preventing the transit of bile; 7, the passage of typical gallstones, though this may take place in connection with malignant disease; 8, the gradual return to health as indicated by cessation of all pain, vomiting or inconvenience of any description whatsoever in the regions of the stomach, gall bladder or liver, a clear, healthy skin and re-accumulation of flesh to nearly two hundred pounds.

I have reached the following conclusions:

1. The diagnosis of simple gallstones, especially when impacted in the common duct as these were is not always an easy matter.

2. Two of these stones were lodged in Vater's fossa for a period of two months in the case of the first and three months in that of the second.

3. The slight diminution in the severity of the symptoms after the passage of the first stone was due to the lessened distension in the duct by the one remaining.

4. Sweet oil probably has some virtue in biliary obstruction as evidenced by the copious discharges of bile following its first administration and the expulsion of a stone after the second; but the fact that it was given several times without result (which I did not mention in order to avoid details) and two of the three stones accompanying the purgative action of C.C. pills imp. lessens to some extent the confidence in oil, giving rise to the thought that any active cathartic might do as well and that the passage of the stones into the intestines was due to the combined influence of quinin and morphin.

This case is one fraught with considerable interest to me. I would be glad to have an expression from those of experience in this assembly. It would be interesting to know what per cent. of obstructed bile ducts take on malignant growth.

It is through the friendship existing between Dr. Walker and myself that I report this case. His absence during a part of the first attack, as well as all of the last, was due to ill health.

SOCIETY PROCEEDINGS

Tri-State Medical Society.

Abstract of the Proceedings of the Fourth Annual Meeting, held in Chicago, April 7, 8 and 9, 1896.

The Society met at the Great Northern Hotel, and was called to order by the President, Dr. R. H. BABCOCK, of Chicago.

After the reading of the minutes of the last meeting by the Secretary, the report of the Treasurer, and reports of standing committees, the President delivered his Address. He selected for his subject

ANTITOXIN OR SERUM THERAPY.

He said the crowning achievement in this line of work had come through the chemistry of bacteriology. Nuttall conclusively demonstrated in 1888 the power possessed by the blood serum of combatting the poisonous products of bacterial growth, but to Behring and Kitasato in 1891 belonged the credit of having found a practical means of utilizing antitoxins in the treatment of disease. To those who decry the antitoxin treatment of diphtheria as dangerous and its advantages as not yet proven, Dr. Babcock commended the criticism by Welch in the *Johns Hopkins Bulletin* of October, 1895. His (Welch's) analysis of cases treated and published up to that time, in the opinion of Dr. Babcock, sets at rest all doubt concerning the great reduction in mortality accomplished by this treatment, and renders the physician culpable who refuses this remedy to his patients. Sufficient experiments on lower animals and trials on human beings had already been recorded to warrant the belief that we shall soon possess an effectual weapon against tetanus. Attempts had been made to treat typhoid fever patients with serum obtained from dogs rendered immune and from convalescents, but as yet observations were too few to warrant a more extended discussion of serum therapy in this class of cases. Dr. Babcock then traced the efforts that had been made to combat tuberculosis by means of serum therapy, telling of the first discovery that certain animals possess comparative immunity from the disease. Detailing several experiments, he said a more intelligent use of tuberculin seemed to show that the early failures were due not solely to the inefficacy of the remedy, but to its injudicious employment in too large doses. He next passed on to a personal trial of the remedy, citing the case of a young woman of 21 years, whose sister had died of pulmonary tuberculosis, and in whom well-marked signs of inactive disease existed in the right apex. The administration of antiphthisin for two months was followed by a gratifying disappearance of the malaise, nervousness and occasional light cough. He also treated a male aged 34 with satisfactory results. Dr. von Ruck had furnished Dr. Babcock with advance sheets of a report, published in this JOURNAL April 11, 1896, of 182 cases of consumption in all stages treated with tuberculocidin and antiphthisin, in which recovery was obtained in 32 per cent. of the cases, arrest or marked improvement in 30 per cent., and some improvement in 16 per cent. In closing, he said that whatever had been thus far accomplished, the field was broad and would repay painstaking investigation along the line of the antitoxin treatment of tuberculosis.

SPECIAL EDUCATION AS A MEANS OF TREATMENT IN CHRONIC NEURASTHENIA.

This paper was read by Dr. J. F. PERCY, of Galesburg, Ill. Neurasthenia was considered the result of an imperfectly used and therefore improperly developed nerve organization. His treatment is to take patients out of and away from themselves, so to speak, and he knows no better way of doing this than to educate them as to the real facts back of their morbid tendencies. In this city there is an ably conducted kindergarten normal school, and when he has a neurasthenic woman he sends her, if possible, to this school to take the normal course there. The result has been that every case so treated has recovered. Moreover, he believes he has lifted the life of his patient to a higher level of thought and action. In one case the right ovary was buried in a mass of exudate beneath the uterus. Electricity, and especially pelvic massage, were practiced for over a year with but little appreciable result. He stopped all treatment and insisted that the woman take a kindergarten normal course, which she did, and the result is that to-day she is well, so far as any morbid mental phenomena are concerned. The course of instruction should be carried out by competent teachers, setting at rest the nervous system, so far as receiving and being influenced by morbid impressions. The teaching should be suggestive rather than direct. It is necessary to classify the patients and instruct them by degrees. This plan, which he had merely hinted at, would do more for cases of neurasthenia than anything else of which he was cognizant.

DR. A. H. CORDIER, of Kansas City, Mo., followed with a paper entitled

CANCER OF THE UTERUS COMPLICATED BY PREGNANCY; INDICATIONS FOR OPERATION.

The author reported a successful case of vaginal hysterectomy in a woman 32 years of age, the uterus being three months pregnant. Of 27 cases tabulated by Dr. Vander Veer, of Albany, 5 died during labor undelivered, 9 died during the puerperal period, 3 results not mentioned, and 10 recovered, the mortality to mothers being 60 per cent. Another author reports 34 cases of cancer of the uterus, complicated by pregnancy, with a mortality of 52 per cent.

Dr. Cordier drew the following deductions:

1. Cancer of the cervix uteri, if left without surgical interference, always kills.

2. The disease, in most instances, is primarily a local process.

3. Early hysterectomy will cure quite a percentage of these cases.

4. The microscope, while a great diagnostic aid, is not infallible in its findings.

5. The experienced surgeon is warranted in resorting to hysterectomy, even in doubtful cases.

6. All malignant pregnant uteri should be removed when seen, before the disease has advanced beyond the period of a probable cure.

DR. RYAN, of Galesburg, cited an uncomplicated case of cancer of the cervix which occurred in the hands of another practitioner, and in which the cervix was amputated, the patient being four months advanced in pregnancy. Following the operation she went on to full term and the child was delivered without difficulty.

DR. L. H. DUNNING, of Indianapolis, said that if he should find hardening of the cervix and the development of a neoplasm with the presence of discharges, sanguineous or offensive in character, even though the microscope failed to reveal positively the existence of malignant disease, he should be inclined to pursue the course recommended by the essayist. Relative to the advisability of removing the cervix alone, it might be done if the surgeon is certain that the epitheliomatous variety exists; yet the woman's life was in peril after the neoplasm is removed because of the scar tissue which remains. A case corroborative of this point was cited.

DR. RUFUS B. HALL, of Cincinnati, thought the whole matter hinged upon the diagnosis. When the diagnosis was accurately made, it is perfectly clear what should be done. He favors total extirpation, believing that high amputation should only be done in exceptional cases.

DR. D. C. BROCKMAN, of Ottumwa, Iowa, emphasized the importance of early diagnosis. He believes the fault in these cases lies largely with the general practitioner, who does not understand the importance of irregular hemorrhages occurring in women approaching the menopause, and who prescribe a placebo at a time when a radical operation is needed.

DR. BYRON ROBINSON, of Chicago, concurred with the essayist that the microscope alone was insufficient in many cases to enable the surgeon to make an accurate diagnosis of malignant disease of the cervix, and that more stress should be laid upon the clinical history of the case.

DIFFUSE PELVIC INFLAMMATION.

This was the title of a paper contributed by DR. L. H. DUNNING, of Indianapolis. Five cases were reported in which vaginal hysterectomy was resorted to for inflammatory disease of the uterus and appendages, after which the author summarized as follows:

1. In all of his cases, except one, the uterus on removal was not found to be markedly diseased beyond a glandular endometritis.

2. In the two cases in which the uterus and appendages were fixed the operation was most difficult. The uterus in either case was little diseased. The chief pathologic lesions were double pyosalpinx and pelvic peritonitis. The operation would have been easy and the results quite as good by the abdominal method.

3. In these cases the appendages were much more inaccessible and less open to ocular inspection than in the abdominal operation.

4. In his experience in clamp cases the pain after vaginal hysterectomy is greater the first two days than after celiotomy.

5. The systemic disturbances, as evidenced by the temperature after vaginal hysterectomy is lower the first three or four days, but is higher after six to ten days, when the sloughs begin to give way.

6. In two cases in which ligatures were employed instead of clamps, abscesses in the stumps of the broad ligament followed, retarding the recovery of the patients. Many cases of abdominal section were done in the hospital during the same time, and in none of them did abscess appear.

7. In one case of the five, prolapsus of the vaginal walls appeared a few weeks after the patient began to walk around. This was a ligature case. Such a prolapsus he had never witnessed in a forceps case.

8. In three of the cases the same pain and nervousness followed the recovery as sometimes witnessed in cases of abdominal section. In two of the cases the pain and nervousness passed off after several weeks, as it usually does after abdominal section.

Dr. Rufus B. Hall said that women should be educated up to the point of avoiding septic infection, suppurating tubes and ovaries. The young men likewise should be educated to avoid gonorrhea in order to prevent infecting their wives in future years. This being accomplished, gynecologists would have less pus tubes and diseased ovaries to remove.

Dr. T. J. Watkins, of Chicago, believes there are cases which should be operated on by vaginal incision and drainage, while there were others in which the abdominal route was preferable. All large pus collections in the pelvis that could be opened and efficiently drained without entering the peritoneal cavity should be treated by incision and drainage through the vagina or above Poupart's ligament. Vaginal hysterectomy should be the operation of election in old backward displacements where the uterine appendages are destroyed by suppurative disease.

DYSURIA IN WOMEN.

Dr. O. B. Will, of Peoria, read a paper on this subject. Acting upon the assumption of the zymotic origin of the trouble, his first thought was to neutralize the fermentative action taking place in the lower sections of the digestive tract. For this purpose he had used with great success charcoal and sulpho-carbolate of soda, the former administered in tablet form, 5 grains or more at a time and frequently repeated; the latter in half drachm or more doses, three times a day, before the taking of the respective meals. As to the local treatment years ago he used with success in these cases of irritable bladder and urethra a strong solution of nitrate of silver, injected into the organ, the resulting pain being held in abeyance by the use of large doses of morphia. Coupled with this forcible dilatation of the urethra for fissure came into vogue, and in some cases seemed to answer a good purpose. Wherever a state of tissue tension exists and free drainage is desirable, the stretching process is an admirable therapeutic adjunct and is a preliminary measure to the treatment to which the author now resorts. The patient is placed in the elevated dorsal position advised by Kelly in exploring the bladder and catheterizing the ureters. After quickly mopping out the residual urine, if there is a hyperemic or analogous condition of the trigonal region, he applies at once on the most dependent portion of that region, from a long pointed syringe, a few drops of a 10 or 15 per cent. solution of potassa permanganate. Preliminary to this, however, he uses a 10 per cent. solution of cocain with which to dilate the urethra, a few drops of which introduced into the bladder serves to obtund in some measure the sensibility of its mucous lining. In cases where the whole tract from that point to the meatus is in an evident state of irritation, either with marked hyperemia or in an eruptive condition, he quickly swabs the pendent area of the bladder with cotton on a screw applicator, soaked in the permanganate solution, and, making sure that there is no sharp point to the applicator exposed, with it draws the charged cotton out through the distended urethra, following in the tract of the withdrawn speculum. After the application of the permanganate to the urethra it is generally advisable to introduce within a few minutes a large sized bougie, heavily coated with lanolin, especially on the end, so that the lubricant may adhere more abundantly and extensively to the urethral wall. Even in those cases of dysuria associated with eczematous and urticaria-like eruptions in urethra and bladder, he had recently found this treatment to be most effective.

Dr. E. O. Sisson, of Keokuk, Iowa, read a paper entitled

ULCERATIVE INFLAMMATION OF THE CORNEA.

The author first dwelt upon the etiology, and then passed on to the subdivision of keratitis suppurativa. Symptomatology and complications were next considered. With regard to the treatment of corneal ulcers, the author reiterated the methods laid down in the several text-books.

Dr. Alex. Hugh Ferguson, of Chicago, read an interesting paper on

PYLORECTOMY IN AMERICA.

He said the literature up to date only shows thirteen resections of the pylorus in this country, and of this number eight died, and five recovered. The first successful pylorectomy performed in this country was by Dr. Wm. T. Bull, of New York. The proportion of deaths immediately following the operation places shock as the most prominent cause. In none of the cases reported is the nature of the shock stated, that is, whether it was manifested by marked cardiac inhibition nervous depression, or excitement. The author then reported a case upon which he had successfully operated. He is strongly in favor of encouraging pylorectomy for carcinoma of the pylorus, for the following reasons:

1. Medical treatment offers a mortality of 100 per cent. within twelve or eighteen months.

2. Pylorectomy promises a possible cure. In 19 per cent. of over nine hundred cases dying with cancer of the pylorus, no adhesions whatever were found after death: starvation took place before the carcinoma had reached the peritoneum. There would be good prospects of curing most of these. Recovery from the operation occurs in about 50 per cent. Death occurs in 43.7 per cent. while the disease is still local, *i.e.* no secondary deposits, or extension beyond the pylorus. Surely some of these could be saved. A still less mortality takes place with early operation. By timely interference many cases could be saved that now go on to secondary infection, and are doomed. To secure the best possible results shock must be anticipated and measures taken to prevent it. In addition to the hypodermic injection of strychnia before the operation is commenced, the author is convinced from a large experience in major work that when the patient is placed on a hot water bed during the operation that shock, which otherwise would have been pronounced, is in many cases altogether prevented. He feels certain that this precaution was a material contributing element to the success of his pylorectomy case. After opening the abdomen, he recommends the performance of pylorectomy thus:

1. Liberate the duodenum from the pylorus, unite its distal cut end to the posterior surface of the stomach with Murphy's button and invert the proximal cut end toward the pylorus and close with sutures. The great advantage of completing the gastroduodenostomy first, is that the operation can be safely stopped at this stage should the patient show signs of weakening, the abdomen at once closed, and the removal of the pylorus left for a second operation.

2. Separate the stomach from the pylorus and close it rapidly with sutures. Should the patient now present alarming symptoms, the surgeon should again cease operating and leave the pylorus *in situ* in the meantime. It would, of course, be necessary to fasten it in the abdominal wound and drain it externally, which, however, would only facilitate its extirpation at another time.

3. Remove the cancerous pylorus. Spend no time in trying to use interlocking ligatures, but apply forcep after forcep and cut the mass away. This done, the application of ligatures can be executed more expeditiously.

LOCAL TREATMENT OF THE EYE

was the title of a paper read by Dr. Dudley S. Reynolds, of Louisville, in which he said that the local treatment of the eye was as much in need of reform and readjustment as in any other department of surgery, for there had been little change in prevailing customs for nearly a hundred years. It seems to him that it is rational for practitioners to get out of the nitrate of silver path of destruction and quit furnishing the aid of cauterization to the less destructive processes of a surface inflammation. Boric acid will protect abraded surfaces against the ordinary dangers of infection; will allay local irritation; and so these may be appropriately prescribed in every case of pain in the eye from foreign bodies. The yellow oxid of mercury he considers valuable as a local application in nearly all forms ulceration or abrasion of the cornea and conjunctiva. The tension of the eyeball must be noted in every case of injury, and if found slightly increased, a solution of eserin should be instilled, a saline purgative administered, and if the increased tension be accompanied by a sense of pain on pressure upon the globe, it is best to begin with salicylate of sodium or ammonium at once. Hot ablutions are often of great value in cases of irritation of the iris and ciliary body, whether due to constitutional or local causes. In cases of contusion, and in those cases of extravasation of blood from sneez-

ing, lifting heavy bodies, and from various causes of small blood tubes, a solution of pilocarpin promotes rapid absorption of effused fluids. This may be instilled into the eye or injected under the retrotarsal conjunctiva in doses too small to perceptibly affect the heart.

DR. FRANK ALLPORT, of Minneapolis, thought Dr. Reynolds had struck the keynote in certain phases of ophthalmic practice, in that he strenuously advocated the harmless treatment of the eye. He had seen so many instances of eyes that had been injured along the line indicated by Dr. Reynolds, that the paper appealed to him very strongly. The longer he practices ophthalmology, the more he feels the necessity of using mild and uninjurious remedies. He could not but believe that remedies such as the doctor had indicated in his paper that actually produced irritation of the conjunctival surface or of the epithelium of the cornea could be other than extremely injurious in cases of acute inflammation.

DR. WM. H. WILDER, of Chicago, could not agree with the essayist when he thinks that we should abolish the use of the stronger remedies in the treatment of diseases of the eye. They certainly have their use, and particularly in infectious cases, as gonorrheal ophthalmia, whether in the newborn or in the adult. The severer cases of trachoma should be handled without gloves. It is true, their treatment requires skill, but there is no reason why the general practitioner should not familiarize himself with the methods necessary for the treatment of all of these cases.

OBSERVATIONS ON SOME CRITICISMS OF SEROTHERAPY.

DR. PAUL PAQUIN, of St. Louis, Mo., read this paper. No department of therapeutics has called forth so much criticism as serotherapy. These criticisms have been of two kinds: Those based on scientific problems of biology, and secondly, those based on clinical effects and results. The author considered these separately at length. To show the most deleterious results of serotherapy, injudiciously applied, the author had conducted experiments in animals and man and analyzed the results. In a rabbit in good health the number of red blood corpuscles per cubic millimeter were 5,800,000. He injected 4 c.c. of pure horse-blood serum immunized, and three hours later the red blood corpuscles were counted again and they had dropped to an average of 3,900,000 per c.m., a loss of 1,100,000 per c.m. of blood. Eight hours later, 3 c.c. more of pure serum of another horse was injected, and within four hours the red blood corpuscles had been reduced to practically 2,800,000 per c.m., or 3,000,000 less than before any injection. At the same time the leucocytes had increased in large numbers. Practically, the same results were obtained in a man 35 years of age. The number of red blood corpuscles averaged 4,400,000 per c.m. before injecting pure horse-blood serum. Ten c.c. were injected in one dose, the patient never having received it before. Four hours later the red blood corpuscles averaged 3,800,000 per c.c. Six hours later they averaged 3,000,000. Again, in this instance, the white cells were enormously increased. In the experiments both in man and animal, in which the blood cells were diminished largely in number, the temperature declined slowly below the normal, and there were pronouced symptoms of depression. A phase of criticism is based on the idea that in using serum, some fatal or at least dangerous animal diseases, such as glanders and tuberculosis, may be transmitted to man. This is well founded. Glanders has thus been transmitted, if we are to believe the reports of the press, but this danger can be entirely avoided. As to the beneficial effects of serum, these depend unquestionably in a great measure upon increased phagocytosis. The serum increases the white cells whose duty it is in part to destroy microörganisms in tissues and their toxins, probably by a process of cellular digestion, or rather a diastatic neutralization. In a tuberculous man of 35 years, in which the white cells were less than 16,500 per c.m., they were increased to over 40,000 in seventeen days by the daily injection of 2 c.c. of antitubercle serum. The author obtained a similar result in a rabbit in which he had injected Roux antitubercle serum daily for three days, the dose being 1 c.c., also with other serums in other small animals.

DR. FRANK ALLPORT, of Minneapolis, read a paper in which he pointed out the relations which should exist between oculists and opticians. He advanced strong arguments in favor of licensing opticians to fit glasses. The fitting of glasses was not a trivial affair, but necessitated in many instances a thorough examination of the eyes by a properly equipped, specially trained medical practitioner.

DR. DUDLEY S. REYNOLDS, of Louisville, said it frequently happens that a neurotic person consults the ophthalmic surgeon with two or three, or perhaps half a dozen pair of spectacles in his possession, and on suspending the accommodating power of the eye and testing the state of refraction no glasses are needed.

DR. RYAN, of Galesburg, said that every practitioner who is doing more or less ophthalmic work had seen evidences of the injury done by traveling opticians and spectacle venders. Every general practitioner should look at the eye, not as a machine, but an organ which performs a general physiologic function.

DR. R. HARVEY REED, of Columbus, Ohio, said that legal measures would soon be enacted in Ohio to prevent the optician from encroaching upon the field of the ophthalmologist. The instrument makers would also be included if the bill should become a law. The subject was further discussed by Drs. Wilder and Hale, of Chicago, and Dr. Balls, of St. Louis.

THE OPERATIVE TREATMENT OF JACKSONIAN AND FOCAL EPILEPSY, AS ILLUSTRATED BY SELECTED CASES.

DR. CHAS. B. NANCREDE, of Ann Arbor, Mich., read this paper. The cases reported by the author demonstrated what has been the experience of Horsley, Keen and other surgeons, namely, lack of permanency in results. The great difficulty is a reliable method of preventing adhesions. The removal of the lesion in cortical and Jacksonian epilepsy can only be regarded as palliative. The earlier the operation is done after the disease has become established, the longer the immunity. It is possible that if trephining is resorted to early, the operation in a few instances might prove curative, if a reliable method is devised to lessen the inevitable scar and to prevent adhesions between the membranes and brain. Operation is not dangerous in competent hands, especially when performed early.

A public address was delivered (by invitation) by DR. JOSEPH M. MATHEWS, of Louisville, Ky. Dr. Mathews selected for his subject

SOME NEEDED REFORMS IN MEDICINE.

He first dealt with specialism, according all honor to the specialist. Professors in medical colleges should educate students that the great object in medicine is to practice it; and yet we find blooming into special lines of work every day all over the Union, both in the cities and country, young men, without any special preparation either for surgery or for any other particular line of medical work, setting themselves up as learned men in special departments. The profession should call a halt. It should be impressed upon the minds of students that thorough preparation is necessary in order to be a specialist, and unless this is done specialism would be brought into disrepute. No man can be a specialist in any department who has not fitted himself and had experience in the general line of practice. Reform was needed in the appointment of medical men to fill places in medical institutions, such as asylums, etc. Too often petitions were circulated and signed in favor of this and that man, without taking into consideration professional qualifications.

Expert Testimony.—This should be raised to a higher plane, and those who testify as experts should receive adequate compensation therefor.

Attendance at Medical Societies.—In the State of Kentucky there are 4,000 registered practicing physicians. Of this number about four hundred only belong to the State Medical Society. Dr. Mathews believes that this small membership obtained proportionately in the other States. The live, busy, energetic and most eminent practitioners attended medical societies.

Consultations.—The old rule that applied to consultations does not hold good to-day. Specialism was not known until recent times. There has been a change in the order of things and practitioners of medicine have to meet the issue just as it is. To-day a patient either belongs to the physician or to the specialist, and not to both alike. When a specialist recognizes that a patient does not require his special attention he should call a physician. Per contra, when a physician recognizes that a patient needs special attention he should give the patient to the specialist. Dr. Mathews then strongly condemned the endorsement by medical men of preparations, the composition of which they know comparatively nothing. A reform was absolutely indispensable in this regard.

Code of Ethics.—This document needed no defence from him, as it stands open to the world. He did not believe there was a man or woman in the profession who could raise any objection to what is taught therein. The perfect gentleman, however, in his professional relations could control his actions without the Code and act with honesty toward his fellowmen, at the same time there is nothing in the Code to which honorable men could object.

Quacks.—The State Board of Health of Kentucky had succeeded in driving out of the State within the last two years over eight hundred and fifty charlatans. How was this accomplished? By the concerted action of the medical profes-

sion and the representatives in the State Legislature. Dr. Mathews then paid an eloquent tribute to the good work that had been done by the former Illinois State Board of Health.

Dr. R. Harvey Reed, of Columbus, contributed a paper entitled

SOME PRACTICAL REASONS FOR EARLY OPERATION IN APPENDICITIS.

In an article on the "Surgical Treatment of Chronic Catarrhal Appendicitis," read by him before the Ohio State Medical Society in June, 1891, he referred to the practical uses of the vermiform appendix and expressed them by quoting the following couplet from an old poem:

"Everything can something do,
But, pray, of what use are you?"

At that time he drew the following conclusions, which he emphasized in this paper:

1. That the vermiform appendix is a useless rudiment.
2. That chronic catarrhal appendicitis is always dangerous and liable to be followed any time by hazardous and even fatal results.
3. That medical treatment is of little or no permanent value in this class of cases.
4. That the only safe and reliable method of treating chronic catarrhal appendicitis, and the only treatment that will promise permanent relief to the patient is the prompt amputation of the appendix.

It is the experience of Dr. Reed that delay increases the mortality record in these operations. Cases were then reported illustrating the importance of early operative interference, and the arguments of eminent surgeons advanced in its favor.

Dr. D. C. Brockman, of Ottumwa, Iowa, followed with a paper entitled

OBSERVATIONS ON THE TREATMENT OF SURGICAL TUBERCULOSIS.

The author called attention to three remedies to be used in the treatment of tuberculosis, guaiacol internally, and iodin trichlorid and iodoform emulsion locally. While he does not believe guaiacol is a specific in tuberculosis, he thinks its judicious use will prove efficient against the septic condition which accompanies this disease. He next called attention to iodin trichlorid in vesical tuberculosis. In the management of tuberculous abscesses there was no treatment that could compare with the use of iodoform emulsion.

Dr. Elmer Lee, of Chicago, read a paper on the

TREATMENT OF PNEUMONIA WITHOUT DRUGS.

The principle which has guided the author in his experiments in the treatment of pneumonia is based upon a conclusion reached some years ago that the maintenance of the strength of the patient is the first requirement in the successful treatment of an acute disease. To preserve the resistance of the system against disease requires an understanding of two simple propositions: 1, how to support the embarrassed nutrition, and, 2, the proper force by which to aid in the removal of deleterious matter from the body. Following upon these two general principles we have confronting us fever to subdue, arterial pressure to overcome, congestion to remove and oxygen to provide for preserving the blood. The symptoms were next dwelt upon at length. As to the treatment of the disease, the author has recently instituted in his practice a sprinkle-bath, which he illustrated. A fountain syringe containing water of a temperature below the normal of the body is hung on the wall, the chandelier, or the bedpost, and by reason of a small sprinkler nozzle, fitted to the end of the tubing, the patient is watered as would be a bed of flowers in the summer time. First, the patient is placed upon a blanket or a rubber sheet and the front of the body sprinkled, then the patient is turned upon his face and the shower bath completed. Sprinkle-baths should be given to the patient every two or three hours during the day. Irrigation of the bowels constitutes the use of water in its third remedial capacity. The value of the irrigation is placed by the author in the second place of importance, as follows: 1, water introduced into the system through the mouth; 2, water introduced into the large bowel as an irrigation, and 3, water used upon the surface of the body. The use of water by the mouth as a remedy is accompanied with extremely small doses of medicine to meet the expectations of the patient and members of the family. Pneumonia cases treated by scientific hydriatic measures are convalescent at the end of the first week. Complete recovery is proportionately shortened. It is the author's belief that this method of treatment is the quickest, surest and best management of pneumonia. This plan was only an outline of the general system of treating pneumonia by hydriatics; each case must be managed and directed upon its individual merits.

CONSERVATIVE SURGERY IN THE TREATMENT OF HEMORRHOIDS.

By Dr. Joseph B. Bacon, of Chicago. The author finds in looking over his records that but a very small per cent. of his operative cases have been purely internal or external hemorrhoids. Cases that are suffering or bleeding sufficiently to cause them to seek medical advice are those that have a mixed form of piles, where the anastomosing vessels connecting the external and internal hemorrhoidal veins have become varicosed, and these dilated veins press upon the sensory nerve filaments over the inner border of the external sphincter muscle, causing pain and prolapse of the internal hemorrhoids. A segment of the varicose system of veins must be removed, one segment on each side of the anus being sufficient. If the larger tumors are removed, one at least on each side, the varicose system of veins is broken and the remaing varicosities are absorbed and disappear. Remove those hemorrhoids that are causing the discomfort together with the external or skin tags, and the patient is cured, and only a small surface of either skin or mucous membrane has been disturbed. The ligature, clamp and cautery, or crushing method, according to the choice of the surgeon, will answer the purpose. After the patient is convalescent, teach him the causes of his previous trouble and how to avoid congestion of the portal circulation, or overstraining of the general vascular system. This method of operating gives the best results, and if adopted generally would tend to restore the confidence of a much abused class of patients and give the general public greater respect for the science of surgery.

Dr. Thomas O. Summers, of St. Louis, read a paper on Leucocytosis—its Relation to Modern Therapy.

Dr. Alexander C. Wiener, of Chicago, exhibited cases of spastic torticollis treated with extension apparatus combined with corsets.

Dr. Gustav Fuetterer, of Chicago, described a new method of treating gonorrheal infections of the knee-joint in which he had successfully used injections of oil of sandal wood. He employs the best preparation of this kind made.

CLINICS.

A clinic was given at the Postgraduate Medical School by Dr. J. B. Murphy before the members of the Society. Dr. Murphy did a cholecystostomy in one sitting.

At Rush Medical College, clinics were given by Dr. J. H. Etheridge and Dr. Fernand Henrotin. Dr. Etheridge did a laparotomy for hydrosalpinx on one side and pyosalpinx on the other; and Dr. Henrotin performed a vaginal hysterectomy for malignant disease.

Dr. Nicholas Senn, at his usual Thursday afternoon clinic in Rush Medical College, exhibited several patients upon whom he had previously operated for peritoneal tuberculosis. He next showed and expatiated upon the following cases upon which he had operated: Tubercular appendicitis; tubercular perichondritis; several cases of tuberculosis of the cervical glands; sarcoma of the breast; tubercular synovitis of the knee-joint; pyloric stenosis; pseudo-leukemia; a case of hernia operated on by the Bassini method; tubercular osteomyelitis implicating the phalanges of the toes; penetrating gunshot wound of the knee-joint, etc.

The following officers were elected for the ensuing year:
President, Dr. A. H. Cordier, Kansas City, Mo.
First Vice-President, Dr. Hugh T. Patrick, Chicago, Ill.
Second Vice-President, Dr. H. C. Eschbach, Albia, Ia.
Secretary, Dr. Geo. W. Cale, St. Louis, Mo.
Treasurer, Dr. C. S. Chase, Waterloo, Ia.
St. Louis was selected as the place of the next meeting.

SELECTIONS.

The Physiologic Effects of the Indulgence in Anger.—The *Medical Examiner* quotes from the *Journal of Hygiene* a vivid description of the results of bad temper. It says: We can readily understand the sentiment of the Latin line in our old copy-books, *Iræ furor brevis est*, in the presence of this vivid portrayal.

The list of affections defined under "angina" in the dictionaries—for it has the same derivation as anger—and its modifications, as angina pectoris, is something startling, for it may be safely said that an uncontrollable, passionate disposition, individual or ancestral, is the seed from which most of these ugly conditions have sprung. Look for a moment at a man in a fierce rage: The muscles of his arms are tense, so that

his fists are instantly clinched, the muscles of the neck and chest so rigid that breathing becomes difficult and unnatural, and the circulatory system is temporarily congested. When such a mental state is frequently allowed unnatural sway over the body, it is not hard to see how the difficult breathing and inflammatory states of the various diseases which are grouped under the head of angina, and the constricting pain and spasm of angina pectoris have their origin. It sometimes happens that a man falls dead in a fit of rage, and it is said, perhaps, that he had a weak heart, which could not stand the strain imposed by his mental state. Nobody seems to think that this is but the culmination of a long series of such fits of madness, which have themselves caused the weakness in question. Another class of persons are slow to anger, but when aroused are so filled with resentment that they will brood over injury or injustice for months or years. They brood and brood over the occurrence until it becomes a mental canker, eating into the vitals, and this, if habitual in recurrence, will produce disastrous results. Still another class are fault finders. Perhaps they are seldom positively angry, but their minds are in a chronic state of turbulence in which they feel themselves injured. These people suffer from nervous diseases.

People of this description are not first-class selected lives. They become so-called cranks—abnormal creatures, and sooner or later do something or become victims of some condition which will cut short their life expectation.

Relapsing Sore Tongue.—Mr. Jonathan Hutchinson presented to his post-graduate class a case of the above named affection, as reported in the *Medical Press* for February 26. There were large abraded patches upon the surface of the organ, and these resembled a severe attack of herpes. Herpes of the tongue occurred chiefly along the margin and tip; herpes of the tip was exceedingiy common. Sometimes these attacks supervened with such frequency that the patients were scarcely ever free from them. The history of the present case was that the disease had persisted off and on for twenty years. At intervals the tongue would be quite sound, but after some months a relapse would occur. The present attack, which had lasted for four months, was the most severe which the patient could remember. On examination of her teeth, one tooth was seen in which an amalgam stopping had been used. Mr. Hutchinson here remarked that he entertained great prejudice against amalgam stoppings in teeth, especially in mouths which were sore. In such cases he always insisted upon the amalgam being removed and gold inserted in its place. Dentists, he stated, would not believe that any harm arose from amalgam stoppings. But he was satisfied that in certain conditions some chemic solution of the amalgam took place. Most often the tongue became sore opposite the tooth in which the amalgam was present. Moreover, he had often found that patients could tell by means of a slight metallic taste in their mouths which tooth it was in which the amalgam had been placed. Again, he had often seen cases of sore mouth where all the symptoms had been relieved by replacing the amalgam with gold stopping. The pellicular condition of the patient's mouth was most interesting. In some respects the leucophakia somewhat resembled that seen in smoker's tongue, but more inflammation was present than was usually observed in the latter condition. It was worthy of note that the filiform papillæ had disappeared over a large area. The patient, on being asked if any particular articles of diet caused irritation to her tongue, replied that anything "sharp" did so, and in this connection she instanced vinegar. She also avoided walnuts. Mr. Hutchinson was interested to find that she had herself discovered the irritating effect of walnuts. He pointed out that walnuts were especially harmful in these cases. The old, dry walnuts were possibly not much to be blamed in this connection, but the juice of the rind of the young, moist walnuts was especially irritating. He had seen many cases of sore mouths arising from this cause. Again, such patients should avoid all effervescing waters, and sugar in combination with vegetable acids was very harmful. The remedy for these cases was arsenic.

Extraordinary Longevity in a Family having an alleged Tuberculous Taint.—The Philadelphia *Press* has the following item, which we will be glad to have verified by the local medical faculty of Otsego County, N. Y.: "Probably the most remarkable case of longevity in Burlington, N. Y., is to be found in the Wilkinson family, the majority of the members being residents of Mount Holly. The ages of the eight persons now living are: Mrs. Martha Groom, 91 years; Priscilla Wilkinson, 88 years; Margaret F. Lamb, 84 years; Ann Curtis, 83 years; Mrs. Ruth B. Barton, 82 years; Lavinia Wilkinson, 79 years; Abel Wilkinson, 79 years; William E. Wilkinson, 77 years, their aggregate ages being 662 years, an average of 82 years. They are all well, active, possess the best of health, have sound minds, memory and understanding. There are many remarkable circumstances connected with the lives of these people, particularly the fact that both father and mother died at an early age, both parents being the victims of consumption. Abel Wilkinson, a Welshman, died in 1828, at the age of 48, and his wife Deborah, a German, died in 1832, at the age of 52. Not one of the children has had the slightest trace or symptom of that disease." The relation of tuberculosis to longevity form a vexed question with the life insurance leaders, and the latter as a rule steer clear of risks with a frank tuberculosis history. It is not sufficient that a "risk" is, at the time of examination, in a robust and assimilative frame of physique—if he have a frank history of tuberculosis—for it is by no means certain that some comparatively slight engrafted malady or accident may not before long overtake and demoralize the apparently robust physique. The pessimistic examiner will feel impelled to decline the risk. How the optimist may be expected to view the case may be judged from a report recently put forth by the capably and adroitly conducted New York Mutual Life Company. This report, which is in part at least the product of the pen of Dr. E. J. Marsh, a veteran medical director who has for years carried vast responsibilities for the mastodon companies, is addressed to the double question on the value (positive and relative) of family history and personal condition in estimating a liability to consumption. The closing remarks and conclusions of this report are as follows: While mindful that individuals with a very unfavorable family history have, as a rule, been rejected, and that, therefore, our experience has been to this extent limited, the statistics gathered by our later actuaries warrant the following conclusions:

1. That the history of consumption in any member of the immediate family increases the probability of its appearance in an applicant.

2. That consumption in a brother or sister is at least of equal importance as when it has occurred in a parent.

3. That persons who are under the standard or average of weight are much more liable to consumption than those above this standard. That the peculiarity of constitution which is indicated by the inability to take and assimilate a proper amount of nutriment indicates a susceptibility to phthisis, or at least is a reasonable suspicion of such predisposition.

4. That persons who exhibit a robust and well-developed body have little susceptibility to consumption.

5. That the personal condition of weight and robustness has far more value than the family history in diminishing the liability to consumption.

6. The evidence presented by a well-developed body may outweigh the suspicion attached to unfavorable family record.

7. That these influences of family history and personal weight are of the same grade for every age, and their importance is not lessened by the fact that the individual has reached middle life.

8. And as an eighth conclusion, and at the same, time *précis* of counsel to medical examiners, the report closes in saying: "In deciding upon the eligibility of an applicant for life insurance, in whose case there is a suspicion of future danger from consumption, his personal condition is of the first, and his family record of the second importance. Whenever he presents a robust physical appearance, with a weight at least equal to the standard or average as given in our tables, he may be accepted, notwithstanding any taint in the record of his family. In our experience such persons have a small liability to consumption, although not protected from it. If, however, his weight does not come up to the average, and he gives a history of consumption in brothers, sisters or parents, he is to be regarded as an unfavorable risk. This does not mean that all such persons are to be absolutely excluded from insurance, but each case must be carefully scrutinized, and the decision based upon the circumstances of occupation, character, past history, etc. When these are favorable, insurance should be given on terms most advantageous to the company, by limiting the amount or modifying the form of policy; when unfavorable, the applicant should be either postponed until he has gained sufficient weight, or else be absolutely rejected."

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SATURDAY, APRIL 18, 1896.

THE ANNUAL MEETING.

" . . . . . the sweet South
That breathes upon a bank of violets."

Without fear of successful contradiction we may confidently assert that no previous meeting has had a better program, or at this date given earnest of scientific work of higher grade. The plan adopted for the past few years of choosing section officers by each section for itself, has been productive of the highest benefit. Those responsible for the management of the section, are workers in that section, thoroughly acquainted with their colleagues and their respective capabilities. The consequence is that there are few misfits in the section programs. The subjects assigned have fallen into competent hands, as the Spanish proverb has it: "The drum is in hands that know how to beat it." We may with every reason expect our ASSOCIATION work to take even higher rank each year.

The general sessions will be attractive. An interesting address may be expected from our President, "the old man eloquent" of the Pacific Coast; and from those high authorities in medicine, surgery and hygiene respectively, WM. OSLER, NICHOLAS SENN and GEORGE H. ROHÉ. One would indeed go far to find abler representatives of their respective branches in medicine.

Nor will the outside features of this meeting be devoid of scientific interest. We may expect something important from the meeting of such influential bodies as the American Academy of Medicine, the Association of Medical Colleges, and the Conference of State Boards of Examiners and Licensing Boards.

Fifteen years ago the ASSOCIATION met in Atlanta, under the Presidency of PROFESSOR THEOPHILUS PARVIN; our present President, PROFESSOR BEVERLY COLE, was present as the only delegate from California. DRS. DAVIS, GROSS, BALDWIN, HOOPER and TONER, former Presidents, were there, and also DRS. BRODIE, MARCY, DAWSON, BRIGGS and HIBBERD, who each became President. DR. LOUIS A. SAYRE was elected President for the ensuing year, and DR. R. BEVERLY COLE First Vice President. On motion of DR. E. SEGUIN, of New York, the metric system of weights and measures was adopted by unanimous vote, and a resolution from the Section on State Medicine, prepared by DR. STANFORD E. CHAILLÉ, recommended the substitution of "a periodical Medical Journal for the present volume of Transactions." An amendment to the by-laws was offerred by DR. JOHN H. RAUCH providing for the acceptance of one delegate from the U. S. Marine Hospital Service. Thus it will be seen that the former Atlanta meeting was a history maker. Let us trust that at the close of the next meeting in Atlanta the results may show an equal advance.

The profession of the State of Georgia, Atlanta and the South generally will be present to welcome their guests with that hospitality so ingrained in their nature as to have become a traditional trait of Southern character. The season will be the best, and the delicious mountain air will impart new vigor alike to the hurried city specialist, the general practitioner of city and country, and as well the sleepy Rip Van Winkle, Jr. M. D., who comes forth when "laylocks blow" to seek the society of his fellows and gain a renewal of professional life.

Finally, we urge our members to go, and if the discussions by the Sons of Science are too exacting for a weary brain, let them remember that Atlanta itself is well worth looking at, for was it not at Atlanta that

"Thickest there the spear-heads gleamed,
And the scattered plumage streamed,
And the broken shields were tossed,
And the shivered lances crossed,
And the mail-clad sleepers round
Made the harvest of that ground?"

MEDICAL CONFIDENCES AND PROFESSIONAL HONOR.

A recent trial in England has again brought to the fore a legal question that has been already referred to in recent issues of the JOURNAL (March 31 and April 11), and which is still unsettled by statute in many parts of this country, and apparently also in Great Britain, viz., the obligation of secrecy on the part of the physician as to facts obtained by him in his professional relations with his patients. It seems to be the general opinion that this is obligatory, but there appears to have been a difference of opinion in this instance, an eminent physician stating it as his belief that the violation of confidence was under certain circumstances fully justifiable. The rather sarcastic comments of the Judge on this opinion probably show the tendency of the legal mind and have been quoted with commendation by the medical press.

There is no question but that it is, and should be, a point of professional honor under nearly all circumstances to keep sacred professional confidences. One might say *all* circumstances without any qualifications, but for the fact that the law itself interferes with medical secrecy in the case of certain formidable and frequent infectious diseases, and this requirement opens the way for casuistry in several directions. A physician might follow the course indicated by the eminent physician above referred to and plead as an answer the public interest required it; were there no law requiring reports of cases of contagious diseases, would not a physician, on humanitarian grounds alone, be justified in reporting a case of malignant diphtheria, for example in case it were possible to protect the community by no other means than its publication? It is easy to suppose such cases as this, and they belong to the class in regard to which the physician must act according to his conscience, and take the risks his action may involve. It is a curious fact, in this connection, that a certain class of contagious diseases, the spread of which is one of the most important social questions in several points of view, is just the one in regard to which medical secrecy is most imperatively demanded and in which its violation would probably be most disastrous. There have been some damage suits that have fully demonstrated these perils.

On the other hand, it is doubtful whether courts of justice would protect a physician under certain circumstances in following the dictates of professional honor and his own conscience. In such a case as that of the assassin of PRESIDENT LINCOLN any reservation of facts or non-committal conduct might be disastrous, and it is a possible question whether DR. MUDD was not to some extent a martyr to his professional ethical standard. Such cases are, however, too exceptional perhaps to be worthy of consideration; they are referred to only as possibilities, and as illustrating certain risks of the medical profession.

It has been said that the physician stands in honor in exactly the same relation to his patients as the priest who may receive their confessions. This statement requires the qualification that the former alone has to do with honor; the priest should have an entirely different and more exacting standard as regards the question of abstract right. The physician is not specially a guardian of public or private morals, and the obligation to him to rectify or prevent their violation is infinitesimal compared to that of the priest, and while on broad humanitarian grounds there may be in very exceptional cases an excuse for revealing what has been learned professionally, it must be remembered that every breach of confidence is done at the violator's peril, and that this applies as well to any, even implied, confirmation of what may be common gossip or report. DR. PLAYFAIR can not obtain the sympathy of the medical profession in his misfortune if the statements of the lay press as to his conduct are correct.

Such instances only emphasize the need of legislation on this subject, such as is now being pressed before Congress for the District of Columbia. Such a law is now in force in New York, and possibly in other States, and there should be some general legalization of what the ethics of our profession demand. The passage of the law for the seat of government would make an excellent precedent for its extension to all United States courts, and every reader of the JOURNAL is respectfully requested to use his influence with his representative for its success.

THE AMBITION OF THE OPTICIAN.

It is quite certain that we are entering upon a prolonged period of controversy and even warfare with the opticians. It is, however, rather with a portion of the general class, who are persuaded to throw in their lot with the jewelers and spectacle vendors. Their aim is to be recognized legally and commercially as official refractionists, the physician, specialist or ophthalmologist being relegated to the position of one who deals only with so-called diseases of, and operations upon, the eye. In the State of New York a determined attempt is being made to secure the passage of a law to this effect, and with the well-known and pronounced sympathy with quackery upon the part of legislators, newspapers and the general public, it becomes evident, as we have said, that this is only the first showing of the cloven foot. If, as seems likely, the opticians will not succeed in New York the first time, they will try it again and again, and in other States also.

The claim of recognition as the official refractionists of the community is based upon a tissue of misrepresentations, ignorance and errors easily seen to be such by medical men of any intelligence, but which bear considerable plausibility from the lay standpoint.

Let us first acknowledge that in one respect their reasoning is by no means shallow or foundationless. This is that many physicians (so-called) after taking a six weeks' course upon the eye at some post-graduate school, go off and set up as specialists, and pretend to be able to treat eye-strain and all the conditions that attend or cause it. This appears to us a most glaring abuse, and our post-graduate schools should look sharply at their work and the presumptions that they authorize by these courses. At present they are open to grave criticism. One who has been a general physician is but little better fitted after six weeks of special study to do refraction work, than is a layman-optician after the same "preparation." An expert ophthalmologist can have nothing but contempt for the impertinence that makes such a claim. Few physicians are competent to prescribe for eye-strain with less than two years of special and earnest study.

But even this admission by no means justifies the optician in his own claim. One abuse or wrong can not justify another and a greater one. It only makes us look a little sharper for the beam in the professional eye.

The fundamental argument upon which MR. PRENTICE and his associates rely in their raid upon the New York Legislature, is that the treatment of eye-strain is simply a matter of mechanic optics—that all one has to do is to learn the static and dynamic refractive and muscular anomalies of the patient's eyes, and then apply glasses by an invariable rule. This, as all ophthalmologists know, is downright error and falsehood. It is never in a single instance true. The ophthalmologist who should carry on his practice in that manner would soon find himself without patients. His more discerning competitors, by the inevitable results of his own stupidity, would soon get his patients. Every case of eye-strain has medical bearings and significance, either negatively or positively, and must be prescribed for with a physician's knowledge and judgment. That this is not entirely recognized by the medical profession is no argument. The experts in such matters should be consulted; only their opinion is valuable. We have before us a circular from an optician who claims that "above (sic) 170 physicians now send us their patients." If this were only nine-tenths lie it would be bad enough, and would only argue against insufficient education on the part of these physicians—or against the giving of commissions by opticians.

We have left out of the count a fact which is painfully evident to all oculists. There is hardly a day that they do not see instances of blindness or ruined eyes simply because the patient relied upon optician's glasses, and (of course) the optician failed to recognize the glaucoma, paralyses, pareses, organic diseases of the eye or of its innervating centers pointing to systemic disease. A few malpractice suits would perhaps set this matter right, as in such cases opticians are as certainly liable for damages before the law as are physicians, and they should be made to suffer for their temerity and impertinence.

Admitting, for the sake of argument, that—optically speaking—refraction and prescription is all that is required to treat eye-strain, it still does not follow—far from it—that opticians are capable of diagnosing and prescribing for errors of refraction. We have heard oculists of the most trustworthy judgment and long experience say that out of thousands of glasses prescribed by opticians they have never yet seen a single one that was correct.

The entire matter resolves itself into an attempt on the part of a certain class of men to arrogate to themselves functions and duties without education or ability. All the laws of optics in the world can not teach medicine. Eye-strain is a disease (or symptom of disease), and to treat disease requires a medical education. It is over again the same essential controversy as was once waged and fought through as regards the druggist and the physician. Civilization has settled that controversy, and must in the same identical way settle the present one. The optician stands in the same precise relation to medicine as does the druggist. We are glad to know that the better class of opticians have nothing but scorn for the impertinent attempts of some of their unworthy fellows to arrogate to themselves a public function without proper preliminary education and qualifications. To them we may look, it is hoped, to aid the profession in its opposition to this latest attempt at legalizing quackery. They should unite as once did reputable and conscientious druggists to put the seal of their condemnation upon a plan that can only bring them disgrace. They have a noble and highly respectable calling, but it is as distinct from that of prescribing for diseases of the human organization as is that of the druggist. The profession is deeply cognizant of the debt owed to the intelligent coöperation of both professions, so far as pertains to their peculiar duties.

Medical men should be alert to oppose this subtle and ill-designed scheme which can, if possible, only result in more pernicious abuses and bring incalculable harm to the world.

AN ANTI-VACCINATION CENTER SEVERELY AFFLICTED BY SMALLPOX.

The town of Gloucester, England, and its vicinity has been the scene of much popular excitement on account of an epidemic of smallpox. A riotous demonstration took place at the Cottage Hospital, at Oakridge, used for the treatment of cases of that disease, and arson was committed, the hospital being damaged to the extent of $600. Seven persons were convicted; and each were sentenced to a year's imprisonment.

In February last, the assizes for the Winter Term should normally have been held at Gloucester and JUSTICE GRANTHAM attended at that town for this purpose, but such was not carried out. In his charge to the grand jury he stated that he had received a communication from the authorities in Gloucester to the effect that smallpox was prevalent in the city and had been so for some little time past. Although every step had been taken to prevent any spread of the disease he had been asked to authorize an order to be issued closing all the public galleries in the court, so that no one should be allowed to attend the assizes save those on business. This he deemed was a very serious thing to do, and the question occurred to him, whether he was justified in bringing together into a town, where disease was prevalent, persons from all parts of the country, of all ages and both sexes, and in all states of health. The judge, therefore, took steps the

result of which were that the assizes were ordered to be removed to Cheltenham. Since, however, this decision has been arrived at the judge observed that he was informed that in Gloucester there were many people who, for the sake of a better name, called themselves anti-vaccinationists, that was, they resented the opinion that generally prevailed in the country, and by persons in authority, that all children should be vaccinated. When, therefore, he heard that the local authorities refused to compel persons to have their children vaccinated he thought it was more desirable than ever to take the step which had been taken because there were in the town many people—children and adults—who had not been vaccinated. It may be after this that the authorities will take these remarks of the judge into serious consideration.

The following paragraph in the *New York Times* comments upon the effects of the anti-vaccination craze upon the afflicted town:

"Anti-vaccinationists in this country may well ponder on the experience through which the citizens of Gloucester, England, are now going. For years that city has been a center of the anti-vaccination craze, and so prevalent there was this particular form of idiocy that the law in regard to the employment of this safest and most certain of all the prophylactics known to medical science has long been a dead letter. The local authorities refused to enforce it, and as a result, not only has a vast proportion of adults gone without any other protection than luck from the attacks of a loathsome and fatal disease but a whole generation of helpless children was allowed to grow up unguarded, and every school became simply an invitation to pestilence. Now the invitation has been accepted, and such an epidemic of smallpox is raging at Gloucester as has been rarely equaled in modern times, except among the savage tribes of Africa or Greenland. It was only a few weeks ago that the first case was reported, and already the infection has swept through the whole city. The hospitals are crowded to overflowing, business is at a complete standstill, churches and schools are closed, and toward the cemeteries moves an almost continuous procession of wagons laden with the dead. And yet, in circumstances like these, the anti-vaccinationists of Gloucester are as vehement as ever in defense and propagation of their doctrines. They hold nightly meetings, and as all the local papers except one refuse to print their imbecile arguments, they are placarding the town with hideous and puerile pictures of Death, using his dart as a lancent and vaccinating a child who struggles in the grasp of a policeman."

An item in one of the English journals, also, states that an isolation hospital will presently be built for the use of Gloucester, in five pavilions, at a cost of nearly $50,000, inclusive of $10,000 to be spent for extra roads, water supply, sewering and disinfection plant. The experience of the town, which is not a large one, has been costly and humiliating.

THE TRANSACTIONS OF THE FIRST PAN-AMERICAN MEDICAL CONGRESS.

We have received many inquiries concerning the Transactions of the Pan-American Medical Congress, which was held in Washington in September, 1893. Some of the correspondents have been inclined to hold the late Secretary-General responsible for the delay. From a letter received from that gentleman we gather the following points:

1. The manuscript of the Proceedings of the Pan-American Medical Congress was compiled by DR. CHARLES A. L. REED, the Secretary-General, and was transmitted by him, in accordance with law, to the Secretary of State, Washington, under date of Nov. 25, 1893—but little more than *sixty days after the adjournment of the Washington meeting. This act ended, absolutely,* DR. REED'S *custody of and control over the Proceedings.*

2. The Congress then in session, by concurrent resolution directed that the Proceedings be printed and bound in cloth and that 4,000 copies be delivered to the Department of State for distribution. The publication thus ordered was done by the Public Printer under the direction of an efficient editorial committee of which the Secretary-General was not a member.

3. Complete advance sets of the printed sheets, without illustrations, were furnished the President of the Congress, DR. PEPPER, in September, 1895.

4. The complete mailing list of the Congress, embracing all registered members and foreign correspondents, was compiled by DR. REED in 1893, and forwarded to the State Department at the earliest intimation of the probable delivery to the Department of the printed edition.

5. Information received in February, 1896, from the Public Printer announced the completion of the work and its delivery to the State Department, under the frank of which it is to be distributed to members residing in the United States, Mexico and Canada.

6. The delay in the distribution of the volumes probably depends upon some unavoidable exigency in the departmental service, the officers of which have at all times manifested a cordial interest in the promotion of the work. Further inquiries should be directed to the Department of State, Washington, D. C.

It is thus clear that the responsibility for the delay does not rest with any of the medical officers of the late Congress.

OUR JOURNAL.

The two-year lease by which the JOURNAL became a tenant of No. 86 Fifth Avenue, Chicago, will terminate April 30, 1896. Although the JOURNAL has prospered even in these troubled times of financial depression, far beyond our hopes, yet the work has been done under many difficulties and annoyances. The two changes in lessors, made it almost impossible to obtain the satisfaction of any complaint, the damages by fire and water, the breakage of machinery whereby we were many times deprived of power, the unpleasant surroundings of the hall and the utter failure of the management to perform any of their verbal promises, made a condition hard to bear with equanimity.

We have, by direction of the Trustees, concluded a lease with the owners of the Occidental Buildings, 61 Market Street, whereby we shall in a few days occupy the third floor in a new fire-proof building, now nearing completion. In this building there will be much more room, and new machinery will be added. We shall purchase an electric motor to run the machinery, so that we shall

no longer be subject to vexatious delays, on account of failure of power. We are happy to state that the JOURNAL was placed in the mails with absolute regularity during the past year, but it is an eloquent testimonial to the industry and zeal of the mechanical department, for several times "night runs" were made, and many days of over-time were expended on account of accidents which we trust may in the future be avoided. The increase in growth of the ASSOCIATION membership, larger than in any two previous years combined, shows that the work of professional organization is rapidly being accomplished.

The business necessity of a permanent home for the JOURNAL, is one that becomes more and more urgent each year. As the plant becomes more extensive, and the business increases, the bad policy of paying rent will be apparent. This item of rent will probably increase from year to year until the ASSOCIATION directs the purchase of a suitable property. Some talk has been in the air about a change of the place of publication, but it is evident that should the final home of the JOURNAL be in one city or another of our country, the policy of owning our own building is one that of right should prevail, and is a question entirely apart from that of location, which indeed might be settled once for all by the vote of each member without discussion. This question at rest, then the ASSOCIATION can easily take the necessary steps to provide a fund for the purchase of property, the payment of interest and the gradual extinguishment of the debt. The present move should be the last move into a rented building. Next time we should go into quarters owned by the ASSOCIATION.

THE JOURNAL SPECIAL TRAIN.

There is but one special train from Chicago to Atlanta operated by the authority of the Board of Trustees of the ASSOCIATION, all others are imitations. Reserved space on this train may be secured at this office or of MR. J. C. TUCKER, Big Four office, 234 Clark St.

CORRESPONDENCE.

Popular Lunacy.

CHICAGO, April 9, 1896.

To the Editor:—In a recent editorial entitled "Popular Lunacy," you refer to the highly educated young woman of London who suddenly asserted her conviction that marriage was immoral and her intention to live in concubinage with a workingman. In the following paragraph you say, "whatever may have been the actual condition of the woman the moral of the decision (made by the Commissioners in Lunacy) is this: Insanity must be of a definite type, no new forms are to be discovered, our knowledge of it is exhaustive. This is an opinion, that, however satisfactory it may be to the legal mind, can have no medical standing whatever, its mere statement is a *reductio ad absurdum* in itself." Herein, it seems to me, you have touched the cause of much of the real trouble in regard to expert testimony in our courts, especially in cases of insanity. That the present system is outrageously defective will scarcely be denied by anybody but that any very speedy change may be anticipated is almost as hopeless. The legal mind is trained to have great respect for precedent and authority: to it the old things are the best: antiquity confers upon a custom an almost sacred veneration. A lawyer and a judge hunt for precedents, so far as possible for their decisions: their guides are to be found in the past. This is undoubtedly as it should be. Our whole judiciary system rests upon and owes its dignity largely to the venerable antiquity of its forms. The medical mind being scientific on the other hand, has or should have little esteem for mere authority: it cares little or nothing for mere precedent: antiquity rather provokes suspicion in it. It looks forward for new things and new ideas: new discoveries are its goal and the old is quickly forgotten so soon as the new is established. In a word the science of medicine is continuously advancing. Law is conservative, medicine, like all science, is progressive.

The trial by jury is an old and venerable custom, probably the best that has ever been established for the administration of justice. Its object is to elicit *facts* in a case and to award a man a verdict found by his *peers*. At one time insanity was so little known as a disease that nothing but a few *facts* could be predicated of it. A man who did certain things beyond all reason, who acted entirely unlike the majority of his fellows, who distinctly did not recognize the difference between right and wrong, and who showed by word and deed that he was incapable of knowing that his acts were crimes in the sight of the law, even though he were able to distinguish right from wrong, was adjudged insane. He was the victim of a gross form of insanity, and of such any body of laymen might form a decision. That was in the early days of mental science and when mental phenomena were as little known to men of science as to any average layman. The trial of insanity by jury was not then so anomalous a proceeding. To-day, however, the jury system, the old legal tests of insanity and the popular conception of the disease remain about the same, whereas the science of psychology, the knowledge of mental phenomena and the physical causes of those phenomena both in health and in disease, have made a tremendous advance. The old legal tests are entirely inadequate to-day, for there are many varieties of mental disease, many manifestations of the same disease that can not be tested by the old legal standards. Moreover, certain forms of insanity as we know it to-day can not be decided upon the basis of one or more isolated *facts*, comprehensive to a jury of average laymen, but must be decided only by the *opinion* of one who has had long experience and observation in the study of similar cases. As a simple illustration, the delusion of grandeur often manifested early in general paralysis would produce but little impression upon the mind of an average juryman, and in the absence of more prominent symptoms he would be apt to smile at the credulity of the expert who having seen many cases with similar delusions, should endeavor to impress him with the importance of such delusion as an early sign of serious mental breakdown. Many of the sexual psychopathias and finer grades of mental aberration, including the whole list of monomanias are absolutely outside of the comprehension of the inexperienced juryman. To expect such a juryman, after sitting many wearisome hours in a box listening to the confused examination and cross-examination of a couple of loquacious lawyers and a number of biased experts, to form a clear scientific opinion as to the sanity or insanity of of the prisoner, is ridiculous in the extreme. Were I the unfortunate prisoner I would infinitely prefer having my jury consist of a class of first year medical students, for these would, at least, have had some slight observation of the possibilities and probabilities of disease. Were the verdict to be one of life or death, I would pray to heaven that only those who had made

a life-long study of mental diseases and knew them in all their various forms should constitute the jury and not a set of men who are totally ignorant of the subject, whose minds are confused and wearied by the wordy conflicts of opposing counsels and experts, and who now for the first time have probably heard of such a mental trouble of which I was suspected to be the victim. It is a travesty upon justice itself in our very courts of justice, to allow a body of ignorant men to pronounce a verdict upon a condition of which only the most experienced and subtle minds are capable of forming an opinion.

The diagnosis of insanity does not depend upon the presence or absence of a few isolated *facts* but it is an *opinion* which can only be found by a genuine expert after long, close and serious study of the case. Hence experts, in my opinion, should not be classed as witnesses, but should occupy a judicial position in the court.

Insanity, as we know it to-day in its many and varied forms, with its subtle and singular symptoms, its frequent objective and subjective phenomena, is not a matter for the decision of any body of mere laymen, any more than certain problems of civil engineering, certain phenomena of chemistry, certain questions of mining are for the decision of a promiscuous body of men gathered in from the street. A man's sanity or insanity should be decided by a commission of genuine experts, from whom there should be no appeal unless it be to another commission of experts, this commission to consist of the most learned and experienced in mental diseases, to be appointed in such a way as to be free from politics and to be remunerated in accordance with the dignity and seriousness of their labors. If such a commission decides that the prisoner is insane there should be no further trial of the case; if they declare he is sane, then he should be submitted to the usual civil trial before a jury of his peers.

I know that the spirit of our judiciary system is that every man charged with a crime shall be confronted by his accusers and given an opportunity to examine them in open court. But I claim that the spirit of the system is grossly broken when a man, suspected of so serious a matter as mental disease or charged with the same, is confronted by partisan experts and is sentenced by an inexperienced, unintelligent set of jurymen. The prisoner is suspected of being insane: for the time being, therefore, he represents some one form of the many abstruse and subtle forms of insanity: on the other hand the jury consists of a set of plain ordinary business men, they represent no knowledge whatever of insanity or any of its various forms; therefore, in the abstract sense and metaphorically speaking, the prisoner is not being tried by his peers. As he stands for a certain form of insanity, being suspected of such, his peers in the abstract, are those experts who know more about and are capable of deciding best all questions in regard to that form of insanity. As cases of insanity are tried in our courts to-day, they seem to me to be illegal proceedings and contrary to the spirit of our great judiciary system. The advances made in mental science during the last few years have lifted it, it seems to me, outside of the jurisdiction of our courts. The latter are for the administration of *common justice;* their function is to ascertain *facts* and to pass *sentence* upon the strength of those facts. All this a jury is capable of doing. Insanity, however, is not a question of mere common justice, it is a physical and metaphysical aberration which must be *discovered, recognized* and *granted a certain amount of palliation;* it is not always a bald *fact* readily discernible by the average man, it is a most *subtle phenomenon* which only the most experienced can detect: the decision of it can only be justly made by those who are capable of forming the most accurate *opinion* in regard to it. This, only a special commission of learned experts is capable of doing.

L. Harrison Mettler, M.D.

Poisoning by Acetanilid and Bismuth.

Brodnax, La., April 13, 1896.

To the Editor:—I note in the *Medical Brief*, April, 1896, an article taken from your splendid journal, written by Dr. C. W. Rook, in which he gives the details of these cases of poisoning, one death, from the use of equal parts of acetanelid and bismuth subnitrate. The infants were two and four days old. Without a doubt acetanilid is a powerful drug and should be used with care, but I think the doctor has hardly followed the formula given in the *Virginia Medical Monthly*. I think it is about as follows: acetanilid and boric acid equal parts. (This powder is named by Dr. Burgess of Tennessee, "boralid.") When used on tender skins, as infants, the formula recommended is a bulk of bismuth subnitrate equal to both the others, viz., boric acid and acetanilid each 1 part, bismuth subnitrate 2 parts. It will, no doubt, be noted that in dressing pustular erruptions twelve to twenty-four hours should elapse between dressings. In the cases either by the doctor the dressing in one was reported several times in twenty-four hours, this case died. In the other applied only once, it recovered. In the burn, "every four hours for twenty-four hours," supposably pure acetanilid. After several years experience with it in many ways I am convinced it is safe in 99 per cent. of cases. I have used it since its first appearance in aborting chills, then in the different skin diseases under my care. Given internally I have to record six cases of slight cyanosis in children under eighteen months.

Idiocyncrasy has much to do with its untoward effects. I have before me a report of an adult taking 5 grains, with "unpleasant cyanosis" following. In the *Medical Brief*, January, 1896, p. 86, I see "120 grains taken in six hours (8 doses of 15 grains each), recovery in sixteen hours." No treatment recorded.

Now, while acetanilid is set down as a heart depressant the writer in above article says "heart and respiration nearly normal."

With 120 grains ($\frac{1}{4}$ of an ounce) in a man 26 years old and "heart and respiration normal" there seems to me a screw loose as to the effects usually asserted, heart depressant.

Dr. Blackwood of Philadelphia in the October *Medical Summary*, warns against the use of the drug, within twenty-four hours of administering calomel. In subsequent numbers of same journal will be found letters from several physicians who have for several years used both drugs in conjunction or within a very few hours with no bad effects.

In isolated cases it might produce unpleasant effects, but what drug, potent for good, has not the same record? Cocain, chloroform, opium, even the "sheet anchor" quinin: the mild and ever present Dover's powder has in several instances in my practice produced most distressing urticaria. This is not intended as a "special pleading" for the use of the drug as a dry dressing. There are others which may be safer, but none which have so few faults or so many good qualities. One of these last, it seems to have an affinity for pus; cleaning and deodorizing foul ulcers as well as small pimples; the second application in many cases being all that is required to cure. One very severe case of pustular eruption covering half of the body of a woman came under my care. It more resembled smallpox than anything else. These were cleaned out by the first application of the powder and only two or three applications were needed to cure entirely.

Believing in my practice so far that the drug is a safe remedy, I would not apply it to a very large denuded surface pure or even half and half. I also believe that pitting in smallpox might be prevented, as also the distressing pain and smell of the disease, as well as its contagiousness controlled by "boralid." The backwoods doctor has not the opportunity of trying a new remedy on a number of cases at a time but has to go slowly, compare and study out effects. I have used acetanilid in various combinations in a variety of troubles in not less than 1,500

cases, and except the six above named have yet to see the first severe unpleasant effect.

At the same time it is not out of place to watch the effects of any new drug on a patient; in very young ones to *dilute* skin applications the same as those exhibited internally, and to be there to stop its use if trouble ensues. It is my common practice when administering any new drug, or to new patients, to stay with them from one to six or eight hours and watch its effects. This is perhaps rather "old timey" and does not show up the "busy doctor" exactly—but it is safe—and I find I lose nothing by it. DR. BEN H. BRODNAX.

Bony Union in Fractures of Neck of Femur—A Question of Priority.

MINNEAPOLIS, MINN., APRIL 11, 1896.

To the Editor:—In Dr. Hamilton's Columbus address published in the JOURNAL of April 4, Dr. Mussey is stated to have been the first to demonstate the possibility of bone union after inter-capsular fracture of the hip joint. I have for many years understood that this honor belonged to my dear old friend, Dr. Phineas Spalding of Haverhill, New Hampshire, who is now past 97 years of age, and whom I had the pleasure of visiting a month ago. While I was living at Haverhill fifteen years ago, Dr. S. related to me the circumstances of this first case, and as I find an account of it in the "The Spalding Memorial and Personal Reminiscences," which may interest the JOURNAL readers, I venture to transcribe and enclose it.

Very Respectfully, EDWARD J. BROWN M.D.

"During the sixteen years I remained at Lyndon (Vermont) I had a great amount of practice in the neighboring towns in all the branches that pertain to a physician's life. Being the principal surgeon and consulting physician I had a good opportunity not only to become acquainted with the most important cases of sickness, but also with the views and practice of my professional brethren. Very many cases came up of great responsibility, and I will relate one, because I believe that it was a benefit to the profession, being a new departure at that time from the established mode of treatment:

Governor Cahoon, of Lyndon, fell sixteen feet, in his mill, producing an intercapsular fracture of the hip joint. I had been taught by Professor Mussey, and from the writings of Sir Astley Cooper, of London, that fractures of this character would not admit of ossific, only ligamentous union, on account of the nature of the parts; and a person suffering such an accident must necessarily be a cripple. After being perfectly satisfied as to my diagnosis, I stated this to Mr. Cahoon, and read to him the different authorities on the subject. I then said to him, if I were injured in this manner, I should make appliances and try for a perfect cure, but that it would require ninety days to give the limb a fair chance for ossific union, and perfect rest, without which it would not take place. He replied, on account of a pulmonary difficulty he could not submit to such a confinement. I therefore fixed the limb as well as I could, and left him. After a few days the limb shortened three inches and the foot very much everted outward. Mr. Cahoon then sent for me and said he would rather die than remain a cripple for life, and he would submit to any treatment I thought best. I therefore made my appliances with an apparatus of my own invention, and watched the case with a great deal of care; and at the end of three months had the satisfaction of seeing a perfect cure. As this was so important a case in surgery, I felt it a duty I owed the profession and the world, to publish it, and therefore wrote an article in the *New England Medical Journal*, printed at Boston, October, 1827, giving a full history of the case, my mode of appliances, and my reason for disagreeing with former authorities. Mr. Cahoon lived about ten years longer and no one would have supposed by his walk that he ever had a fractured limb, and he afterward died of consumption. I made an examination of the joint, found the bone had been fractured according to my diagnosis and that there was a most perfect union. This examination I also published in the *Boston Medical and Surgical Journal*.

I am now of the opinion that if this case was not the first one where a cure of fracture within the capsular ligament was perfect, that it was the first case published, and the reasons given why under favorable circumstances we may hope for a perfect union of the bones. Several years after this Dr. Mussey carried a thigh-bone to Europe and showed it to Sir Astley Cooper, who acknowledged his error in his former teaching, and now in all our hospitals in this and other countries, the doctrine is fully established."

Toxic Effect of Antitoxin.

SHULLSBURG, WIS., April 11, 1896.

To the Editor:—The account of the death of a child from a prophylactic dose of antitoxin, in the JOURNAL of April 4, makes me desire to put on record a case similar in its action although death did not occur. The facts are as follows: February 4, I was called to see Henry Snyder. Found him and his five-year old daughter affected with a severe type of diphtheria. I injected the father with a 1500 units and the daughter with a 1000 units strength, Behring's antitoxin, with good results. Mrs. Snyder, who was nursing her husband and child, complained some of her throat and wanted me to examine it. I found the arches of the fauces a little red, nothing more, pulse and temperature both normal, appetite good. She was apparently in good health, except being fatigued from broken rest. As she was the only dependence for a nurse to take care of her husband and child, I advised her to take a prophylactic dose of antitoxin: she consented. Not having the prophylactic dose, I used No. 1, green label, 600 units strength, Behring's, Op. No. 253. A few moments after the injection she complained of feeling faint, her pulse went up to 100, almost imperceptible at the wrist. She became very pale, feet and hands cold, respiration hurried and shallow, pupils dilated. Face was covered with a cold perspiration. I laid her down with her head low and administered stimulants. It was six hours before she rallied so she could sit up and twenty-four hours before she felt herself again.

Place of injection was over right breast and every aseptic precaution was taken. I noticed symptoms of the same nature, not so severe, from the use of a prophylactic dose of antitoxin in a child of 9 years. It seems that antitoxin is apt to produce toxic symptoms in the well. C. C. GRATIOT, M.D.

Association Badge.

NORTH MINNEAPOLIS, MINN., April 7, 1896.

To the Editor:—In the last number of our JOURNAL I notice a short article from Dr. Blaisdell on the "Association Badge." I have spoken of it a number of times during the last few years, asking myself and others of the ASSOCIATION members: What had become of our badge? It has been so long since it was decided and I think voted upon in the ASSOCIATION that we were to have it that I have really forgotten at what meeting it was acted upon, whether Detroit, Chicago, Washington, Richmond, or where. I think Dr. N. S. Davis, of Chicago, introduced the subject, but am not sure. I have grown old since that time, now nearly 74 years, and I feel as though if I am to see a badge it will have to be coming along very soon. A great many of our brethren have already "crossed the river" since the action was taken, and many more will go, I am afraid, before we get the "badge"; unless prompt action be taken. The Atlanta meeting will soon be in session, and some *more definite* action should be taken in the matter.

Very respectfully, A. A. NOYES, M.D.

Bone Grafting.

MILWAUKEE, WIS., April 11, 1896.

To the Editor:—In your issue of April 4, p. 692 is an extract from the *Medical Press and Circular*, in regard to "An Unusual Case of Bone Grafting. Permit me to say that this is another illustration of the old saw, "A prophet is not without honor, save in his own country" and to call your attention to an article on this subject by Professor Senn, in the *Am. Jour. Medical Sciences*, September, 1889.

Yours, G. J. KAUMHEIMER, M.D.

"She Has Suffered Many Things." Another Case.

NEW YORK, April 13, 1896.

To the Editor:—I can not allow Dr. Cory and Dr. Cutter to carry off all the honors in their rivalry over the possession of patients with multitudinous ills. An old bachelor from down East who comes to New York with a new ailment every few months asked me in despair how many diseases it was possible for a man to have. "About two thousand," I answered, "Oh, Lord!" said he, "then I have fifteen more to go."

Yours truly, ROBT. T. MORRIS, M.D.

BOOK NOTICES.

Diagnosis and Treatment of Diseases of the Rectum, Anus and Contiguous Textures. By S. G. GANT, M.D., Professor of Diseases of the Rectum and Anus, University and Woman's Medical Colleges; Rectal and Anal Surgeon to various Hospitals, etc. With two chapters on "Cancer" and "Colotomy" by HERBERT WILLIAM ALLINGHAM, F.R.C.S. Eng., Surgeon to the Great Northern Hospital; Assistant Surgeon to St. Mark's Hospital for Diseases of the Rectum, etc., London. One Volume, royal octavo, pp. 400. Illustrated with 16 Full-page Chromo-lithographic Plates and 115 Wood-engravings in the Text. Extra cloth, $3.50 net; half Russia, gilt top, $4.50 net. The F. A. Davis Co., Publishers, 1914 Cherry Street, Philadelphia; 117 W. Forty-second Street, New York; 9 Lakeside Building, Chicago.

The author is to be congratulated on his careful adherence to the accepted classification of his subject, the number of his original illustrations, and his book generally; for it is a really valuable contribution to the literature of the subject. The latest authorities are suitably mentioned, and the book is not burdened with antiquarian or historic matter.

The author is of opinion that railway employes are peculiarly liable to contract rectal diseases, and states that 75 per cent. or even a larger proportion of all railway employes who have been running on trains for a term of five years or more, suffer or have suffered from some disease about the rectum and anus. The percentage seems large, but Dr. Gant, without giving exact language, quotes several authorities who are said to hold the opinion that the percentage is much larger. But there is reason to believe that a great part of this alleged disease in railway employes is rather due to neglect and lack of proper facilities for bath and ordinary cleanliness than to any etiologic factor inherent in their occupation. To them even more than to "England's king" the injunction of the school of Salernum applies: *Ne mictum retine, nec comprime fortiter anum.*

The portion of the work contributed by Mr. Alllingham constitutes a very valuable addition, and the whole will be a welcome addition to the library of the practitioner.

The Psychology of Attention. By TH. RIBOT, Professor of Comparative and Experimental Psychology in the College of France. Authorized Translation. Third revised edition, cl., pp. 115, price 75c. Published by the Open Court Publishing Co., Chicago, Ill.

This is an effort to present the subject in a more complete form than has been done anywhere else, although it is really little more than a suggestive sketch and far from complete at that. However, the renown of the author commends it to the respectful consideration of all interested in psychology, and while it is not free from weakness of style, such as obscurity and abruptness, it succeeds in directing the reader along lines of pertinent and fruitful observations and, on the whole, it gives a good general conception of the subject. It is divided into three chapters headed 1, spontaneous attention, 2, voluntary or artificial attention, and 3, morbid states of attention.

Summary: Attention is an exceptional abnormal fact which can not last a long time. It is a momentary provisional state of mind. It is not an even operation, but intermittent. Voluntary attention is the product of civilization and previously did not exist or did so by flashes and for short intervals. It first began in women, as they were the first to do labor without immediate attraction. The whole problem is a question of inhibition. Bodily movements are indispensable, necessary factors—not effects. Its physical concomitants are vaso-motor, respiratory and motor (expressions). It is accompanied by local hyperemia of certain parts of the brain and quickens circulation in the nervous substrata which minister to it. Work is the most manifest form of attention. Such are Ribot's views. Our own definition would be that attention is the act of specialization demanded by personal or self-interest in the presence of a multiplicity of interests, and is the *sine qua non* and prerequisite to progressive intellection. It equals knowledge directed *plus* incentive *plus* brain tone *plus* brain capacity *plus* form of environment. It is an exaction of civilization rather than a product.

The National Dispensatory, with Supplement enabracing the New Edition of the National Formulary. The National Dispensatory. Containing the Natural History, Chemistry, Pharmacy, Actions and Uses of Medicines, including those recognized in the Pharmacopeias of the United States, Great Britain and Germany, with numerous references to the French Codex. By ALFRED STILLE, M.D., LL.D., Professor Emeritus of the Theory and Practice of Medicine and of Clinical Medicine in the University of Pennsylvania, JOHN M. MAISCH, Phar. D., late Professor of Materia Medica and Botany in Philadelphia College of Pharmacy, Secretary to the American Pharmaceutical Association, CHAS. CASPARI, JR., Ph.G., Professor of Pharmacy in the Maryland College of Pharmacy, Baltimore, and HENRY C. C. MAISCH, Ph.G., Ph.D. Fifth edition, thoroughly revised in accordance with the new U. S. Pharmacopeia (seventh decennial revision) and embracing the new edition of the National Formulary. In one magnificent imperial octavo volume of 2025 pages, with 320 engravings. Cloth, $7.25; leather, $8. With Ready Reference Thumb-letter Index, cloth, $7.75; leather, $8.50. Lea Brothers & Co., Publishers, Philadelphia and New York. 1896.

Not long since, see JOURNAL (Feb. 17, 1894), we noticed the magnificent new edition of the National Dispensatory. We are now furnished the supplement to the volume, which consists of a national formulary of unofficial preparations. This is in the nature of a "companion" to the pharmacopeia, inasmuch as it gives the formulæ of many preparations once, but not now, official, many others not yet recognized, and still others that were originally private, but now in common use. It will be noticed that elixirs, fluid extracts and emulsions furnish a large portion of the work. We question the propriety of furnishing formulæ for artificial mineral salts and waters, while there is no question of their enormous consumption both in this country and in Europe, yet in the latter countries the imitation article must be sold as such.

This formulary contains many things of great use to the practitioner, such, for instance, as battery fluids for the various kinds of battery, kumyss, mucilages, etc.

No preceding revision of the Pharmacopeia was received with so little criticism as the pharmacopeia of 1890, but still there are many preparations in use which are not included. The "unofficial" formula is therefore a necessity to the practitioner and pharmacist.

Fear. By ANGELO MOSSO (of Turin). Translated from the fifth edition of the Italian by E. LOUGH and F. KIESOW. Authorized translation. 8vo, cl., pp. 278. London, New York and Bombay: Longmans, Greene & Co. 1896.

In this book we have an interesting physiologic or psychologic study of the emotion of fear. The contents are as follow:

"How the brain works; reflex actions and functions of the spinal cord; the brain: the circulation of the blood in the brain during emotion; pallor and blushing; the beating of the heart; respiration and oppression; trembling; the expression of the face; the expression of the forehead and eye; the physiognomy of pain; a few phenomena characteristic of fear; fear in children; dreams; fright and terror; maladies produced by fear; hereditary transmission; education." The

Italian style has been so faithfully preserved by the translators that it makes quaint though very elegant English. We quote a sample from page 213:

"A FEW PHENOMENA CHARACTERISTIC OF FEAR.—The edifice of the human body may be compared by those studying its chemical properties to a vast manufactory of which every corner and every door bears the inscription 'No Admittance.' The curiosity of the public could not be greater; fain would they force an entrance, for all know that the most marvelous things are fabricated therein—wonders which no human hand, no industry can produce.

"The workmen in this factory are very small—marvelously small—invisible to the naked eye, and so tightly pressed together that they sometimes resemble the cells of a beehive, and have on this account (perhaps) received the name of cells. Life proceeds entirely from these workmen, whose confederation is so perfect that not one can be touched without the others at once becoming aware of it.

"The edifice is somewhat weak in parts, and here one might easily force an entrance and make a wide breach; but this violence would avail us little, for when we break into the building the machines stop, causing such disorder and confusion that we are quite bewildered. We hear a whirring and throbbing, the pipes burst, the fluids are spilt, the pumps stop, the valves open—then all grows cold and still; and this is the strike which we call death."

The author has made his book thoroughly entertaining, and his clinical descriptions of fear as observed in various types and conditions are life-like. In conclusion he urges as *the* remedy above all, education.

PUBLIC HEALTH.

To Prevent Introduction of Communicable Diseases.—A law was passed in Michigan in 1895 which provided, under penalty, that no person sick with cholera, smallpox, diphtheria, scarlet fever or any other communicable disease dangerous to the public health, no corpse of a person dead from one of the above named diseases, or from any other communicable disease dangerous to the public health, and no article which has been infected or is liable to propagate or convey any such disease, shall come or be brought into any township, city or village in Michigan, without the special permit of the board of health or of the health officer of any such township, city or village, and then only under the supervision of the health officer of such township, city or village.

Child Labor Certificates and Boards of Health.—In the lower house New York legislature a bill has been passed, by a practically unanimous vote, providing that no child under 16 years of age may be employed in any factory or store unless it holds a certificate from the Department of Health, accurately describing it, and the Health Commissioner is satisfied that such child is physically able to perform the work which it intends to do. Relating to the sweat shops, the bill provides that when any article is found by the inspector to be made under unclean or unhealthy conditions he may, with the consent of the local Board of Health, indelibly brand upon such articles the words "tenement made." A further section makes landlords responsible for the existence of sweat shops and allows them to dispossess tenants.

Aberdeen New Epidemic Hospital.—The Edinburgh correspondent of *Sanitary Record* writes that the extensive additions and improvements which have been carried out at the Aberdeen City Hospital are now completed, and the formal opening ceremony took place on December 21. In round figures, the new works have cost £100,000. The administration block, which is situated in the center of the group of buildings, with two pavilions on each side, has undergone an entire rearrangement, including additional servants' accommodation and a kitchen fitted up with all the modern appliances for cooking and heating. The enlargement of the wards has been accomplished by extension of Nos. 2 and 3, so as to provide additional accommodation for 18 beds in each, and now making over 100 beds in the institution. The pavilions are of one flat, and each of the wards is 16 feet high, 18 feet long, and 24 feet wide. The whole of the original buildings were built in concrete, but the new additions are of granite. The extensions necessitated a complete rearrangement of the grounds, which now cover something like seven acres, and have been laid out attractively in flowers and shrubbery. The whole of the front of the grounds has been so planned as to front Urquhart-road on the north side, in place of the south, that thoroughfare having been laid out since the hospital was originally built. A new gateway and lodge to Urquhart-road has been constructed, and the execution of this portion of the scheme necessitated the knocking down of the old offices and substituting new premises to serve both the internal and outside requirements of the hospital. This block has been fitted up with all the latest appliances for washing, ironing and disinfecting.

Anti-alcoholic Teaching in the Public Schools of New York.—An effort is being made by the Department of Public Instruction of Brooklyn to obtain the repeal of certain objectionable features of legislation that compels the use of anti-alcoholic text-books in the public schools. The following is a portion of the resolutions, recently adopted by that department, pointing out the doubtful utility of compulsory legislation in the interests of any class of social reformers: "The method of teaching is not sanctioned by experience, and many of the statements made in the books are of more than doubtful scientific character. The law was passed at the solicitation of persons who, without training, experience or teaching, assume to dictate to scientific men what they shall say in scientific works, and experienced teachers how they shall teach. This law is the entering wedge of a species of legislation that would turn the public school system of the State over to the advocates of schemes and reforms. The purpose of the public school system is not to promote the schemes of any class of social reformers, however admirable they may be, but to train up men and women of strong minds, firm wills and robust bodies, capable of forming their own rule of conduct. The law takes from local authorities, and from those who have had pedagogic training and experience, at least in part, the right to determine the studies, text-books and methods of teaching in the schools for whose administration they are responsible. The enforcement of this law in the schools of Brooklyn involves the expenditure of a large sum of money that is needed for useful purposes; will dissipate the mental energies of our children: will impair the forces that make for true education, and will in many cases promote the vice it is sought to discourage."

Alleged Fever Increase in Fully Sewered Districts Controverted.—The editor of the *Sanitary Record* points out the fallacy of the argument seeking to prove that the Metropolitan main drainage system of London is responsible for a large increase of fever. He says that there are those who accept the upgrowth of special fever hospitals as a proof that in earlier times these hospitals were not found necessary, but that since the formation of the main sewerage scheme such institutions have sprung up, and are now overcrowded, appears startling. It would be impossible to dispute this statement, for statistics place the matter beyond controversy. Nevertheless, statistics are fallacious and require interpretation. "In the pre-main-sewer days, typhoid, scarlatina, and other fevers did not crowd our hospitals, or cause a direct drain on ratepayers' pockets, because ratepayers died of the disease in quiet obscurity. The diseases were rife, though not much was said about it in lay circles, simply because we had no compulsory notification laws. A great laxity prevailed as regards the signing of death certificates, so that the returns of the Registrar-General are of little real value in a question of this kind. Even after special legislation had been passed, matters were not greatly improved.

Those who have studied this phase of sanitation know well that in the early days of the new order of things notification was very imperfectly observed, it being but indifferently understood by many medical men, and much dreaded by the general public. Now, however, there is greater stringency on the one hand while, on the other, the people are beginning to understand the advantages of notification, and even of isolation. The net result is increase of recorded fevers subsequent to main sewering, for statistics can only take account of registered facts. Then, again, since sewering came in, we have had a steady augmentation of population coinciding with a phenomenal aggregation of the people within the metropolitan area, as with all other large towns. Need we wonder, then, at our crowded hospitals? All this seems very simple, yet it is as well to expose fallacies of statistics, for now that notification is being carried out with an approach to conscientious accuracy, and that the people are growing less afraid of hospitals, the want of accommodation is daily becoming more apparent. It is essential that the necessary demand for more and improved isolation hospitals should not be construed as indisputable evidence of the failure of modern sanitation. Statistics are, unfortunately, often pushed forward to bolster up wrong doctrines; it can not be too clearly pointed out that figures, however accurate they may be, are only of relative importance, and unless explained may prove exceedingly dangerous in the hands of ignorant people or interested individuals. Although it may at first seem contradictory, the fact that more and also larger isolation hospitals are required, is proof that the true value of hygiene is gradually becoming better perceived.

Sanitary Reforms Followed by Reduction in the Mortality by Fever and Tuberculosis.—Dr. Rabagliati, health officer for Bradford, England, addressed a large public meeting on the subject of "The Great Waste of Infant Life." In the course of his argument he adduced the statistics of his town to show the influence of the great public improvements that have been put in during the last fifty years over certain features of adult and infant mortality:

"Beginning with the year 1850," he said, "that between that year and 1855, the loss of life from fevers or zymotic diseases was 5,243 per 1,000,000 of the population per annum, while the rate was now 2,700, the decrease having gone on continuously with the development of sanitary reform and a very noticeable feature of the improvement was that the fevers of the earlier period having mostly stricken children of tender years, the chances of children reaching maturity had been greatly increased by the improvement. Strange to say, however, in men from the ages of 35 to 65 the mortality was rather greater than less than it was fifty years ago, and between these ages the expectation of continued life has not improved at all. The diminution in consumption was very striking. In 1868 or 1869—figures for an earlier date he had not been able to obtain—the deaths from consumption numbered 2,500 per 1,000,000 per annum, while the present rate of mortality from this cause was 1,400.

"But while there were improvements in these two important classes, the deaths from diseases of the respiratory organs were very considerably increased in proportion to the growth of the population, the deaths from cancer had doubled in one generation, and there had been a considerable increase in recent years in deaths from apoplexy. They might feel some alarm at the increase of cancer, but it was pleasant to find that the gain in the consumption rate alone was at least twice as much in total as the increased death from cancer. He would lay down that night the dogma that the question of illness or health depended upon three things—air, food and exercise. There were other matters to be considered, perhaps, but they were trivial by comparison with these three. Accidents were the cause of some deaths, but of the 173,000 which he had referred to, only 6,000 were due to accident, and it was worthy of note that, owing to the efforts of governments to protect the lives of the people, deaths from accidental injury were rather fewer proportionately now than they were forty years ago. Bronchitis had developed very much as a cause of death, although there was no evidence to show that the climate was any worse. The only way to combat this development was by keeping the body in such a state of health that it would be able to resist the ordinary climatic variations."

Health Reports.—The following health reports have been received in the office of the Supervising Surgeon-General Marine-Hospital Service:

SMALLPOX—UNITED STATES.

Ohio: Dayton, March 1 to 31, 4 deaths.
Alabama; Mobile, March 28 to April 4, 1 case.
Arkansas: Fort Smith, March 28 to April 4, 1 case, 1 death.
Louisiana: New Orleans, March 28 to April 4, 85 cases, 21 deaths; Shreveport, March 28 to April 4, 16 cases, 2 deaths:
Tennessee: Memphis, March 1 to 31, 19 cases.

SMALLPOX—FOREIGN.

Dublin, March 21 to 28, 3 cases.
Rio de Janeiro, February 22 to 29, 12 cases, 7 deaths.
Birmingham, March 21 to 28, 1 case.
London, Eng., March 14 to 21, 43 cases.
Tuxpan, March 14 to 21, 1 death.
Paris, March 14 to 21, 1 death.
Odessa, March 14 to 21, 11 cases, 4 deaths.
Acapulco, March 21 to 28, 2 cases.
Calcutta, February 22 to March 7, 3 deaths.
Buenos Ayres, January 1 to 31, 33 deaths.
Madrid, March 17 to 24, 12 deaths.
Bombay, February 25 to March 19, 119 deaths.
Southampton, March 14 to 21, 1 case.
Alexandria, February 26 to March 4, 2 deaths.
Moscow, March 7 to 14, 1 case, 1 death.
Trieste, March 14 to 21, 4 cases.
Naples, March 19 to 23, 15 cases, 5 deaths.
Prague, March 15 to 21, 8 cases.
Buda Pesth, March 11 to 25, 6 cases, 1 death.
Montevideo, February 15 to 22, 4 cases.

YELLOW FEVER.

Rio de Janeiro, February 22 to 29, 298 cases, 199 deaths.

CHOLERA.

Calcutta, February 22 to 29, 71 deaths; March 1 to 7, 122 deaths.
Bombay, March 3 to 10, 4 deaths.
Alexandria, February 26 to March 4, 6 deaths.

CONSULATE-GENERAL OF THE UNITED STATES OF AMERICA,
RIO DE JANEIRO, March 3, 1896.

Dr. Walter Wyman, Supervising Surgeon-General, U. S. Marine Hospital Service, Washington, D. C.

Sir:—I have the honor to remit report for the week ended Feb. 29, 1896. There were 50 deaths from accesso pernicioso, an increase of 7; 199 from yellow fever, an increase of 4; 7 from smallpox, an increase of 1; 8 from beriberi, an increase of 4; 9 from enteric fever, a decrease of 2; 58 from tuberculosis, an increase of 4; and none from whooping cough, in the foregoing week. There were 643 deaths from all causes, the same as in the previous week.

Yellow Fever.—There was an increase of only 4 in the number of deaths from this cause, but an increase of 80 in the number of cases reported, so that the disease is decidedly on the increase, though at this advanced stage of the season we may soon look for a favorable change. Although the temperature has been comparatively low, due to almost daily rains, we have had the increase above stated, which I can only attribute to the insane orgies of the carnival, which preceded the unfavorable change. The compact crowds, in all the principal streets, of individuals heavily clothed and masked, exposed to sun and rain, in numerous cases with uncovered heads, can only produce disease in the hottest season of the year, and during the reign of an epidemic disease in a tropical town. Indeed the authorities are well aware of this fact, and have tried to remove such a serious cause of deaths, but in vain, the populace will have the festa and that is all.

Smallpox.—This disease is very slowly finishing, but it is unusual to have any but sporadic cases at this time of the year. The most ignorant classes avoid all sanitary rules as much as possible, hence the disease extends itself; only a few days ago a Portuguese who keeps a small and dirty restaurant for the laboring classes, nearly in front of my residence, was heavily fined and forced to remove, and his house thoroughly disinfected, because he had had a case of smallpox in a small, dark room adjoining the shop, hidden from the authorities, and from whom the contagion extended to others. I cite this case as one of many. Respectfully yours, R. CLEARY, M.D.,
Sanitary Inspector, M.-H. S.

ASSOCIATION NEWS.

Section on Surgery and Anatomy.

1. Subphrenic Abscess and Its Relation to Pyothorax, Dr. Carl Beck, New York city.
2. Thoracoplasty in Anemia (Schede's) and Visceral Pleurectomy, with Report of Cases, Dr. Alex. Hugh Ferguson, Chicago, Ill.
3. Enchondritis—Surgical Treatment—Report of Cases, Dr. B. Merritt Ricketts, Cincinnati, Ohio.
4. The Rational Treatment of Carcinoma of the Cervix Uteri as viewed by the General Surgeon, Dr. Geo. Wiley Broome, St. Louis, Mo.
5. Extrauterine Pregnancy, Dr. Howard Kelly, Baltimore, Md.
6. Experimental Surgery of the Spinal Column, Dr. De-Forest Willard, Philadelphia, Pa.
7. Traumatic Surgery of the Spinal Column, Dr. W. B. Outten, St. Louis, Mo.
8. Minor Injuries of the Spinal Column, Dr. J. S. Wight, Brooklyn, N. Y.
9. Trephining for Traumatism of the Spine, Dr. Webb J. Kelly, Galion, Ohio.
10. Personal Experience in Spinal Surgery, Dr. J. A. Wyeth, New York city.
11. Exploration of the Cerebro-spinal Axis by Capillary Trephining of Its Bony Encasement for Diagnostic and Operative Purposes, Dr. Edmond Souchon, New Orleans, La.
12. Exploration and Treatment of Fissures from Skull Fracture, Dr. H. H. Beach, Boston, Mass.
13. Drainage of the Fourth Ventricle, Dr. J. B. Murphy, Chicago, Ill.
14. Some Cases of Cerebral Surgery, with Remarks, Dr. J. C. Oliver, Cincinnati, Ohio.
15. ——, Dr. L. McC. Tiffany, Baltimore, Md.
16. ——, Dr. Hunter McGuire, Richmond, Va.
17. The Operative Treatment of Idiocy and Insanity, Dr. Ernest Laplace, Philadelphia, Pa.
18. Ligation of the External Carotid Artery, Especially in Connection with Operations upon the Face, Dr. Wm. Perrin Nicolson, Atlanta, Ga.
19. McEwen's Method of Treating Aneurysms, Dr. J. G. Stewart, Pitcairn, Pa.
20. Conservative Treatment of Large Vessels in the Abdomen and Extremities, Dr. J. B. Murphy, Chicago, Ill.
21. Surgical Shock. A New Treatment with Demonstrations, Dr. Fenton B. Turck, Chicago, Ill.
22. Surgical Sterilization and Sterilizers in Private Practice, Dr. E. Boeckmann, St. Paul, Minn.
23. Some Mechanical Causes of Interference with the Action of the Stomach, and Their Surgical Relief, Dr. W. J. Mayo, Rochester, Minn.
24. Cholelithiasis and Cholelithotomy, Dr. Chas. H. Dunn, Minneapolis, Minn.
25. Who was the First to Illuminate the Sigmoid Cavity? Dr. J. G. Carpenter, Stanford, Ky.
26. ——, Dr. Donald McClean, Detroit, Mich.
27. ——, Dr. Fred Essig, Spokane, Wash.
28. ——, Dr. Chas. K. Cole, Helena, Mont.
29. Post-operative Insanity, Dr. R. Harvey Reed, Columbus, Ohio.
30. The Abortion of Gonorrhea and Treatment of Other Urethral Diseases by Hydrostatic Irrigation, with Demonstration and New Apparatus, Dr. Ferd. C. Valentine, New-York city.
31. ——, Dr. Lewis H. Alder, Philadelphia, Pa.
32. Skin Surgery, Dr. F. W. Epley, New Richmond, Wis.
33. Report of Cases Illustrating the Advantages of a New and Original Method of Obtaining Material for Skin Grafting, Dr. Z. J. Lusk, Warsaw, N. Y.

Section on the Practice of Medicine.

Wm. D. Quine, Chairman. DeLancey Rochester, Secretary.

1. Address of the Chairman.
2. Some General Considerations in Relation to the Nature and Treatment of Disease, L. B. Baker, Pennsylvania.
3. Some Thoughts on Medical Education, John A. Benson, Illinois.
4. Hemorrhagic Influenza, J. J. M. Angear, Illinois.
5. On Pernicious Anemia Associated with or Caused by Disease of the Nervous System, James B. Herrick, Illinois.
6. How to Cure Rheumatism, Elmer Lee, Illinois.
7. Chromo-Analytic Studies of the Blood in Diabetes, Clinical and Experimental, Ludwig Bremen, Missouri.
8. Precedent Causes of Pulmonary Tuberculosis and Their Treatment, J. Wellington Byers, South Carolina.
9. Pulsating Empyema, James E. Free, Montana.
10. Endocarditis as a Complication of Acute Articular Rheumatism, W. W. Grube, Ohio.
11. The Management of Valvular Heart Disease, Geo. L. Cole, California.
12. Reduplication of Cardiac Sounds, N. S. Davis, Jr., Illinois.
13. The Diagnostic Value of the Pulmonic Second Sound, J. N. Hall, Colorado.
14. Nervous Heart, H. Morell, Minnesota.
15. Cardiac Disease During the Quiescent Period, Louis F. Bishop, New York.
16. Lycopersicum in Cardiopathia, W. T. English, Pennsylvania.
17. Shock and Cardiac Thrombosis in Croupous Pneumonia, B. M. Cunningham, Alabama.
18. A Further Contribution to the Subject of Vaso-Motor Ataxia, Salomon Solis-Cohen, Pennsylvania.
19. The Therapeutics of Vibration, Frederick Peterson, New York.
20. The Action of Alcohol on the Organs of Special Sense, J. A. Grosvenor, New York.
21. The Pathology and Treatment of Syphilitic Lesions of the Spinal Cord, George F. Koehler, Oregon.
22. Clinical Note on Spasmodic Torticollis with Especial Reference to Its Treatment, Asa F. Pattee, Massachusetts.
23. Report of a Case of Traumatic Peri-hepatitis and Pleuritis, J. M. G. Carter, Illinois.
24. The Frequent Dependence of Insomnia and Other Neurasthenic Symptoms on Chronic Disease of the Gastro-Intestinal Tract, Boardman Reed, New Jersey.
25. Report of a Case of Tubercular Peritonitis with Remarks on Treatment, H. W. McLauthlin, Colorado.
26. Report of Five Hundred Cases of Gastritis, Fenton B. Turck, Illinois.
27. Chemistry and Bacteriology of the Stomach in Relation to Therapeutics, J. H. Kellogg, Michigan.
28. A. Experiments Concerning Gastric Peristalsis; B. The Pathology of Membranous Colitis, John C. Hemmeter, Maryland.
29. Internal Secretion, J. B. Marvin, Kentucky.
30. Early Diagnosis of Cancer of the Stomach by Means of Chemical Analysis of Gastric Contents, W. C. Weber, Ohio.
31. Intestinal Antisepsis, Diet and Castration in Relation to the Treatment of Epilepsy, Everett Flood, Massachusetts.
32. Nephritis Without Albuminuria, Arthur R. Edwards, Illinois.
33. The Relation of Ascites to Diseases of the Kidneys, W. F. McNutt, California.
34. Gout in Plants and in Man and Other Animals, Woods Hutchinson, Iowa.

Section on Dental and Oral Surgery.

1. Chairman's Address, R. R. Andrews, Cambridge, Mass.
2. A Few of the Causes of Failures in the Dental and Medical Professions, B. B. Smith, Pensacola, Fla.
3. Modern Methods of Treating the Antrum of Highmore, W. X. Sudduth, Chicago, Ill.
4. Further Investigations Upon the Antrum, M. H. Fletcher, Cincinnati, Ohio.
5. Cataphoresis, H. W. Gillett, Newport, R. I.
6. The Technique and Pathology of the Peridental Membrane, Vida A. Latham, Chicago, Ill.
7. Movements of the Mandibular Condyles and Dental Articulation, W. E. Walker, Pass Christian, Miss.
8. Disease of the Oral Cavity, a Potent Factor of General Disease, S. W. Foster, Atlanta, Ga.
9. Treatment of Children During the Period of Dentition, H. H. Johnson, Macon, Ga.
10. Professional Congeniality, H. D. Wilson, Bainbridge, Ga.
11. The Replacement of the Superior Maxilla by a Mechanical Appliance, Thos. P. Himman, Atlanta, Ga.
12. Practical Illustrations in Conservative Surgery, G. Lenox Curtis, New York City.
13. ——————, G. V. I. Brown, Duluth, Minn.
14. Pyorrhea Alveolaris, Eugene S. Talbot, Chicago.

Section on State Medicine.

ADDITIONAL PAPERS.

45. Arguments Favoring a Department of Public Health, Liston H. Montgomery, Chicago.
46. The American Medical Benevolent Fund, Frederick Horner, Marshall, Va.
47. Alcohol in Therapeutics, T. D. Crothers, Hartford, Conn.
48. A Study in the Psychology of Inebriety, W. X. Sudduth, Chicago.

49. Teaching the Danger of Alcohol in Public Schools, CHARLES H. SHEPARD, Brooklyn.
50. Alcohol in Emergency Cases in Hospital Practice, I. N. QUIMBY, Jersey City.
51. Alcohol Anesthesia, L. D. MASON, Brooklyn.

Section on Obstetrics and Diseases of Women.

ADDITIONAL PAPERS.

19. Intrauterine Amputations, C. E. PADDOCK, Chicago.
20. Selected Methods and Cases in the Electro-therapeutics of Fibroid Tumors, E. BETTON MASSEY, Philadelphia.
21. A Plea for Complete Hysterectomy, A. M. CARTLEGE, Louisville, Ky.
22. The Value of Oxygen Combined with Ether, Chloroform or the A. C. E. Mixture in producing Anesthesia during Gynecological Operations, J. N. DE HART, Brooklyn, N.Y.
23. Drainage *versus* Radical Operation in Cases of Large Pelvic Abscesses, CHARLES P. NOBLE, Philadelphia.
24. The Most Efficient Method for Rapid Delivery of the Child, with Undilated Os and the Child Viable, W. H. JOHNSTON, Birmingham, Ala.

SOCIETY NEWS.

The Association of American Medical Colleges.—The next regular meeting of the Association will be held at Hotel Aragon, Atlanta, Ga., May 4, 1896.

On invitation of the American Academy of Medicine, the Association will meet with that body to discuss several papers on medical education at 9 A.M. The regular official session will be held at 4 P.M., Monday, May 4, 1896.

The following program corresponding with the by-laws of the Association is proposed:

ORDER OF EXERCISES.

1. Reading of minutes of previous meeting by the Secretary. Adjournment of ten minutes.
2 (a) Roll call of membership. (b) President's Address. Prof. Wm. Osler.
3. (a) Report of committee on syllabus. Drs. Howard Kelly, Perry Millard, Bayard Holmes. (b) Report of committee on preliminary education. Dr. Fletcher Ingals, Chairman. (c) Reports of other committees. 1.) Relative to constitutional amendments. 2.) Relative to by-laws.
4. Financial report of Secretary-treasurer, Dr. Bayard Holmes.
5. Report of Judicial Council, Dr. Dudley S. Reynolds.
6. Reading of papers.

(The day of meeting of the Association was changed, at Baltimore in 1895, so that time might be given to the presentation of papers. Each paper will be limited to fifteen minutes. A syllabus must accompany the title and be in the hands of the Secretary not later than April 20. Only three papers can be read in full.)

7. New Business. (a) Constitution amendment relative to entrance requirement offered by the University of Colorado. Sec. 1, Article III. (b) Constitution amendment relative to Sec. 4, Article III. (c) Other amendments. (d) Other new business. (e) Election of officers. (f) Adjournment.

The University of Colorado proposes the following amendment to the Constitution, viz.:

"That Section 1, Article III, be amended to read, That the preliminary examination provided for shall be conducted by a Board of Examiners in no wise connected with a teaching body of a medical college."

Representatives of the Rush Medical College, the Woman's Medical School of the Northwestern University, and the College of Physicians and Surgeons, all of Chicago, propose the following amendment to the Constitution:

"That for the first paragraph of Section 4, Article III, the following be substituted:

"College members of this Association are free to honor credentials issued by colleges of equal requirements except in the case of branches embraced in the fourth year of their own curriculum."

This notice is sent to every regular medical college in the United States, and every college willing to conform to the requirements of the Association is requested to make application for membership and send a representative to the Atlanta meeting. Unless otherwise directed, the dean or president of a medical college will be considered its representative.

BAYARD HOLMES, Sec'y,
Venetian Building, Chicago, Ill.
WM. OSLER, President, Baltimore.

NECROLOGY.

A. H. WILLIAMS, M.D., of Nashville, Tenn., April 10.——H. M. Fiske of San Francisco, Cal., April 3.——Robert Burnside, M.D., of Barbourville, Ky., April 2.——John I. Ellet of Kansas City, Mo., March 30, aged 85.——Dr. McCall, Wakenda, Mo., April 4.

DR. W. T. CARTER of Louisville, died on the 11th inst., at his residence of appendicitis. He was operated upon on the 6th and did well for two days but peritonitis developed and he died very soon after. Dr. Carter was born in Oldham County forty-seven years ago. He came to Louisville when quite young and deciding upon the study of medicine began his work at the Kentucky School of Medicine, from which he graduated in 1870. He has been connected with both the Kentucky and the Louisville Medical Colleges. He had a wide acquaintace and a large practice and his death is generally deplored. He leaves a wife and two children, one a daughter attending the Female High School, and the other a son who will graduate from the Louisville College of Dentistry in June. The funeral took place on the 12th inst., from his late residence, his remains being interred in Cave Hill, temporarily until they can be cremated, which was Dr. Carter's wish.

L. L. SASSER, M.D., of Smithfield, N. C., an alumnus of the University of Virginia of the class of 1883, and a sanitarian of more than local repute, is the subject of the following minute of respect in the State Board of Health's *Bulletin* for March, 1896: "It is with unfeigned regret that we chronicle the death of the late Superintendent of Health of Johnson County. Dr. Sasser was a gentleman of intelligence and education, well equipped for his profession, of pleasant address and deservedly popular. He will be greatly missed."

Dr. JOSEPH A. MURPHY died on Easter Sunday at his home in Wilkes Barre, Pa., aged 54 years. He was one of the best known and most popular physicians in the Wyoming Valley, and was present at the Baltimore meeting last year. He was graduated in 1868 by the Medical Department of the University of Pennsylvania.

MISCELLANY.

Association of Life Insurance Medical Directors.—The annual meeting of this association will this year be held at Richmond, Va., on April 30 and May 1.

Prof. Behring's Gift to Science.—Our foreign exchanges announce that Behring has donated the 25,000 francs he received from the "Albert Levi" prize to establish a fund for sero-therapeutic research.

Concerning Exhibits, the following extract from by-laws of the Medical Society of the State of Pennsylvania is announced as governing the committee of arrangements of that society at the next annual meeting: "The committee of arrangements of each annual meeting shall grant the privilege of exhibition under the auspices of the society only to such pharmaceutical articles as are recognized by the United States Pharmacopeia, or are not protected by trade mark, secrecy of preparation or other exclusive proprietorship."

Female Physicians Wanted.—The *Medical Examiner* says that the "New York State Civil Service Commission finds great difficulty in securing suitable candidates for the position of women physicians in the State Hospitals. These positions are desirable ones, paying from $1,000 to $1,500 per year, beside giving ample opportunity for practice and study in nervous and mental diseases, with pleasant home and associations. The examination advertised in January failed for lack of applicants. Application for this examination should be made to the Secretary of the State Commission, at Albany."

Sound Health in Insurance Law.—The appellate division of the supreme court of New York says, in its decision of Robinson v. Metropolitan Life Insurance Co., Feb. 4, 1896, that the term "sound health" is capable of different meanings. An idiot may be in sound health physically, and the same is also true of a cripple. For this reason, it holds that if the defendant insurance company, at the time it issued the policy, was apprised of the actual condition of the insured, that she was an idiot and a cripple, the term "sound health" should be construed as referring only to her physical condition, apart from her mental imbecility or the fact that she was crippled, and a provision in the policy that no obligation was assumed by the defendant unless, at its date, the insured was alive and in sound health, did not void the policy.

Power to Remove Superintendent of Hospital.—The grant of power to appoint to public office, as for example to the office of superintendent of a State hospital for the insane where no term of office is fixed by law, the supreme court of North Dakota holds, in the case of State v. Archibald, decided Feb. 20, 1896, carries with it as an incident the absolute power of removal at any time, without notice or charges or a hearing, and without the cause for removal being inquired into by any court. Such power vested in a board can not be limited by any action taken by such board, whether by appointing the officer for a fixed term, or by by-laws restricting the power of removal to cases where cause for removal exists. The people, under such legislation, have a right to demand that whenever the board shall deem it for the public interests to remove the officer, its power of removal shall be the absolute power vested in it by the legislature, and shall not be fettered by any restriction whatever. Mandamus is the proper remedy to compel one who has no color of title to an office to surrender it to one who holds the prima facie title to it.

Duty of Telephone Companies.—A decision of interest to physicians and those who have occasion to call them by telephone is that of the appellate court of Indiana in the case of Central Union Telephone Co. v. Swoveland, rendered Feb. 12, 1896. It holds that it is the duty of a telephone company doing a toll service to send out a messenger from the receiving station and notify the person called for that he is wanted at the telephone, unless the distance is one such that it would be unreasonable to require it, and that the company is responsible for the acts and omissions of the messenger whom it employs, notwithstanding it has rules and regulations declaring him to be the agent of the person desiring to be placed in communication with the one called for. In this instance it was a veterinary surgeon who was wanted, and the court further holds that in computing the amount of damages recoverable by the owner of a fine horse on account of several hours being lost by the surgeon in reaching him through the negligence of the telephone company, that the value of the horse could not be taken into consideration because it was mere speculation whether the life of the horse would have been saved had the messenger delivered the call at once.

Rules as to Expert Testimony.—Where a person has been educated as a physician and surgeon, the court of appeals of Kansas holds, in the case of City of Wichita v. Coggshall, decided Feb. 6, 1896, he may give his opinion on questions pertaining to his profession, and may testify from his personal examination. When he does so his opinion must be derived from his examination, and not dependent upon the statements of others. If he does not speak from his personal examination, his opinions must be based on hypothetical questions propounded to him; the hypothesis must be based on the truth of all the evidence given in the case, and must be so framed that he can answer it intelligently; and his answer must be based on the hypothesis stated, and not from a consideration of what might or might not happen under certain conditions; it should be an opinion of the witness predicated on the hypothesis containing the facts. Where a witness, in his answer to a hypothetical question, makes answer that is not responsive to the question, and states facts that are incompetent as evidence, the court should strike the answer out, and direct the jury not to consider it as any part of the evidence in the case.

A Special Patent Medicine Tax. Among the laws passed in Missouri in 1895 was one providing for the endowment of the State University, and for the establishment and endowment of free scholarships therein, the third section of which provides that every manufacturer of medicines or remedies commonly known as patent medicines shall pay a license tax of $25, and every traveling vender of such medicines or remedies shall pay a license as now provided by law; and every such traveling vender shall take out a license in every county in which he vends such articles. Every manufacturer or traveling vender failing to pay the license tax provided by this section shall be guilty of a misdemeanor, and upon conviction be punished by a fine not to exceed $100. The city of St. Louis is to be treated for the purposes of this act as if it were a county. The taxes or fees and fines are to be appropriated for the purposes of the act.

The Inventor of the Ophthalmoscope. Prof. T. C. Mendenhall, in a recent eulogium on the late lamented Helmholtz, refers to his beneficent contributions to ophthalmology, especially the working out of the ophthalmoscope, as having opened a new page in the history of medical optics. He refers to the rare combinations of expert knowledge in the intellect of Helmholtz tending to make possible the rich scientific contributions made to the world, but particularly to the fact that Helmholtz was at once an accomplished physiologist, mathematician and physicist. He says: "It was in 1851 that the Professor made known his invention of the ophthalmoscope, and a few years later that of the ophthalmometer that bears his name. Anxious to actually see what goes on in the eye, and especially on the retina, that wonderful screen on which the image of the visible world is focused, he invented the ophthalmoscope. The qualitative victory was followed by the quantitative, in the invention of the ophthalmometer, by means of which accurate measurements of the various curved surfaces in the eye could be made. These two instruments have been to ophthalmic surgery what the telescope and graduated circle have been to astronomy. So exact has the science of the eye become through their use that it is not great exaggeration to say that one may now have disordered eye repaired, corrected and set going with little more uncertainty than attends the performance of the same duty for an ill-conditioned chronometer. Had Helmholtz accomplished nothing except the invention of these instruments he would have been entitled to the thanks of all mankind, on account of the comfort they have added to life and the pain and suffering they have prevented."

Expert Testimony on Delusions, Illusions and Alcoholic Delirium.—Dr. Austin Flint, of New York city, recently testified in an important will case, on trial at Hartford, Conn. He is reported to have said, when speaking of the effects of alcoholic liquor taken to excess, that in the first instance, it "interferes with the digestion and appetite. Such persons are likely to have a development of flabby fat. They are likely to have cirrhosis of the liver, trouble in the kidneys and in the nervous system. As a rule the trouble begins at the ends of the nervous system. It may lead to disturbances in motion, owing to the effect on the brain. The immediate effect of alcohol is that the person may do extravagant things. He may be brilliant and witty; others stupid; others lachrymose. It is very rare that an ordinary drunk terminates in delirium tremens. He would place the line of demarcation between an ordinary drunk and the drunk that terminates in delirium tremens at the time when a person becomes markedly delirious and has illusions that

develop into hallucinations, and when he begins to see small objects, as flies, first, and gradually begins to see snakes and devils. A hallucination is consistent with a sound mind; an illusion is a faulty perception of sight, hearing or other sense. A delusion is false reasoning, believing something that has no logical existence. There is a distinction between a delusion and an insane delusion. A delusion may be consistent with a sound mental condition. An insane delusion is a false reasoning of which it is impossible to disabuse the mind. With very few qualifications, there is no such thing as insanity without delusions. A patient suffering from delirium tremens usually recovers in a few days and goes back to his normal condition. When alcoholic persons become insane there are pains in the extremities of the nerves and the speech becomes slow. So long as no delusion existed the person could not be considered insane.

Hermetic Sealing not Indispensable.—Objection was made in the case of State v. Thompson, decided by the supreme court of Missouri Feb. 4, 1896, to certain testimony relating to the chemic analysis of some cheese and the contents of a jar containing the stomach, kidneys, etc., of the deceased, based solely upon the proposition that the jar in which the physician who made the post-mortem placed the stomach, kidneys, etc., was not hermetically sealed. Wharton and Stille's Medical Jurisprudence was cited as authority for this; but the court says that the text does not support the contention. It needs no argument or authority, says the court, to establish that the burden is upon the party relying upon a chemic analysis to detect poison to satisfy the court and jury of the identity of the body examined with that which he asserts was poisoned. This fact, like any other, must depend upon the precautions taken. Certainly, the court continues, the physician making the post-mortem can not be too careful in seeing that the parts he desires analyzed should be carefully separated to themselves, and so kept as to silence any suspicion or doubt; but it may often happen that the proof is entirely satisfactory that the part or parts reserved for the analysis have never been tampered with by anyone whose interest might lead him to destroy or alter them, and, though not hermetically sealed, the analysis would not for this reason be rejected. In this case, there being no evidence to create a suspicion that the parts received by the analyst for his analysis were other than those preserved by the physician who made the post-mortem, the court holds that the analyst's testimony was not rendered inadmissible because the jar in question was not hermetically sealed.

Insane Prisoners to be Transferred to Asylums.—In Indiana a law was passed in 1895 requiring the wardens of the State prisons to report all cases of insanity that may occur in such prisons to the Governor of the State. The latter shall then order the warden to convene a lunacy commission to be composed of prison physician, one resident physician and two justices of the peace, of the township in which the prison is located, whose duty it shall be to investigate and examine into the mental condition of the person alleged to be insane, and report in detail, in writing, to the warden who shall transmit the report to the governor. Upon receipt of the report it shall be the duty of the governor to determine if the person shall be transferred to an insane asylum, and if so, to what asylum, and the conditions upon which the transfer shall be made. The governor may pardon the person and order the transfer made. He may parole the person and order the transfer made. He may order the person transferred to the insane asylum to be returned to the prison when cured of the mental disease to serve out the residue of his term; provided that such person shall have the benefit of the time spent in the insane asylum; and provided further, that if not reported cured of his mental disease by the time his sentence would have expired in prison, he shall be discharged from the prison rolls, and that fact shall be reported by the warden to the superintendent of the insane hospital. It shall be the duty of the superintendent of the insane asylum in all cases where the person is cured of his mental disease, prior to the expiration of his prison term, to report that fact to the governor, who shall then order the warden of the prison from which he was transferred to proceed to the asylum and return the person to the prison, there to serve the residue of his term. In all other cases the person shall be subject to dismissal in compliance with the laws governing the dismissal of persons from insane asylums.

Practical Notes.

Guaiacol Anesthetic Injections.—The European Edition of the *Herald* states that the *Figaro* has a despatch from Dr. Pize of Montelimar that he has discovered that by injecting guaiacol under the skin in small doses, operations can be performed without pain. The committee of the Academy of Medicine appointed to inquire into the value of this discovery has sent its congratulations to Dr. Pize.

Diagnostic Importance of Uric Acid and the Xanthin Bases in the Urine.—Brandenburg reports in the *Berl. klin. Wochenschr.*, 6-8, the results of the study of a number of wasting diseases to determine the effect of extensive karyolysis on the nitrogenous substances in the urine. He found that diminished nutrition as well as pernicious anemia and mild gastric troubles were accompanied by a diminished elimination of nitrogen in the urine, and also by a diminished amount of alloxanthin substances. In acute infective diseases like scarlet fever, typhoid, etc., the amount of nitrogen and xanthin nitrogen was increased, corresponding to the increased amount of destruction of the albumin of the body. Most interesting was the investigation of these substances in the cachexia accompanying carcinoma. The total of nitrogen was exceedingly small, while the amount of alloxanthin substances was exceedingly large. Brandenburg is inclined to think that this fact may be found valuable in diagnosing carcinoma.—*Wien. klin. Rundschau*, March 8.

A New Method of Estimating Albumin in Urine.—According to the *British Medical Journal*, Riegler of Vienna has brought forward a new and rapid method of estimating albumin by means of the refractometer. It depends upon the power of his new reagent, asaprol, to precipitate all albuminous substances in acid solution: the precipitate is soluble in weak caustic soda or potash, and the refractive index of the solution bears a direct relation to the amount of albumin present. In practice the asaprol (10 per cent.) is made up with 10 per cent. hydrochloric acid. Exactly 25 c.c. of decinormal potash solution are used, and added to the precipitate resulting from the mixture of 5 c.c. of asaprol solution with 50 c.c. of urine. The refractive indices of the resulting fluid (after filtration) and of the potash solution are determined by Pulfrich's refractometer, and their difference divided by 270 gives the exact percentage of albumin present. The coefficient 270 was determined by Riegler as the result of experiments on measured quantities of albumin.

Diagnostic Value of Tuberculin.—Grasset and Vidal have been studying this subject and announce that tuberculin has been administered in too large doses for this purpose, hitherto. They made subcutaneous injections of 5-10 milligram after patient had been kept in bed three days. The reaction is sometimes tardy in appearing, or very feeble, and it must be borne in mind that leprosy, actinomycosis and syphilis also react, so that the test is only certain in the absence of these troubles. But it discloses tuberculosis in cases impossible to diagnose in any other way. In the case of animals, the committee appointed to report on tuberculin stated that it is a very valuable means to detect tuberculosis in cattle, and they warmly recommended its use. All the animals are inoculated and those who react are separated from the rest, and the barns disinfected. Thirty to fifty

centigrams will raise the temperature from one and a half to two and a half degrees C. The test requires twelve to fourteen hours.—*Bulletin de l'Académie de Médecine*, February 25.

The Six Groups of Antithermic Analgesics.—The *British Medical Journal* gives a review, chiefly clinical, of these remedies. They may be classed as follows: 1. Phenol group, with phenic acid as its chief. The chief action of these is antiseptic; their analgesic powers are feeble. The objections are that they are protoplasmic poisons, they paralyze or destroy the blood corpuscles and depress or paralyze the nervous system. Their antithermic action is energetic but transitory. More permanent reduction of temperature can be obtained only at the risk of dangerously toxic doses, or at that of inducing cachexia and profound anemia by frequently repeated small doses. 2. The aromatic acid group, chief of which is salicylic acid. The chief characteristic is a still predominant antiseptic action, less toxicity than group 1, owing to the substitution of COOH for OH. Apart from rheumatism their analgesic power is weak. The large doses required to lower temperature cause digestive troubles, buzzings in the ears, and even cardiac enfeeblement and renal irritation. But with undamaged kidneys they increase diuresis and depurate the blood of extractives and nutritive residue. 3. The anilid group. Its antiseptic properties, though strong, are less than those of phenol and salicylic acid. The fall of temperature caused is rapid, but transitory, with abundant sweats, shiverings, cyanosis, and often hemoglobinuria. 4. The phenylhydrazin group, which are even less satisfactory than the anilids. Like the latter, they are eliminated as amidophenol derivatives. 5. The chinolin group possess considerable antifebrile and antiseptic properties, but are liable to disorder the digestive tract and to give rise to severe nervous symptoms. Their antithermic power is fugacious, attended by profuse sweating, collapse, etc., and attended by too severe corpuscular destruction. Hence, as a group, they are not satisfactory. 6. Pyrrol group, the most important and almost the sole representative of which is antipyrin. Endued with a real antifermentative and microbicidal action, almost inoffensive as regards the blood, it possesses antithermic and analgesic properties second to none. A few derivatives of antipyrin must be mentioned, salipyrin, tolypyrin, tolysal, which do not present any special advantages.

Philadelphia.

A Correction.—The preparation of iron used by Prof. DaCosta for hypodermic use in anemia, is the citrate of iron and manganese (not *magnesia* as given on page 747 of last week's issue). It makes a clear and permanent solution with distilled water, in the strength of three grains of the salt to fifteen minims of water, which is the usual dose, given once daily.

Jefferson Medical College.—The property adjoining the College on Tenth Street, extending south from Medical Street to Walnut Street, has just been purchased by the trustees, it being the design to erect a modern structure adapted to laboratory and clinical teaching, on the corner of Tenth and Walnut. This will afford facilities for the large classes at Jefferson, the need of which becomes greater every year. The Alumni Association is actively engaged in collecting the funds to fit up the new laboratory.

Louisville.

Clinical Society.—Dr. Aug. Schachner entertained the Clinical Society on the 7th inst., the subject of his essay being "Transfusion, Infusion and Autofusion."

Dr. Simon Flexner, Fellow in Pathology at the Johns Hopkins Hospital, delivered an entertaining and well prepared lecture, under the auspices of the Louisville Female High School Alumni, on the 6th inst., at the Female High School. Its title was "Infectious Diseases in the Light of Modern Investigation," and was a learned discussion of the subject, though a little too scientific for the audience which listened to him. The lecture was well illustrated by specially prepared charts which added much to the interest.

M. H. Gwinn, who was indicted at the December term of the circuit court of Bardstown for empiricism, has been convicted of false swearing and practicing with a license and sentenced to two years in the penitentiary. He is under indictment by the circuit court, of Lawrenceburg, and will be tried there upon the expiration of his term in the prison. This ends rather a famous case, the defendant in the case having been convicted and fined on several occasions for practicing without a license. He is uneducated and illiterate, his great claim being that he could cure typhoid fever in a week. Not having a diploma and no license, an opportunity was given him to appear before the State Board of Health and undergo the examination which was held under the new law. He refused to take the examination if he had to tell his treatment for typhoid fever, was finally persuaded to try it by his attorney, and the papers which he handed in and upon which a license was refused him by the board are marvels, although he did not say anything about his typhoid fever treatment. It is a great source of gratification to the members of the State Board that he has at last met with his just deserts.

Health Officer's Report.—The report for the past week shows a total number of deaths of 69. Consumption heads the list with 16 deaths; 8 were caused by pneumonia. There were 6 stillbirths. There were 2 diphtheria cases placarded and 5 cases of scarlet fever.

Detroit.

The Detroit Medical and Library Association at its regular meeting Monday, April 6, had a paper by Dr. George Thomas Jackson, of New York, entitled "Too Much and too Little Hair." The paper brought forth discussions from Drs. A. E. Carrier and Andrew P. Biddle. Dr. Carrier said that he could remove from thirty to sixty hairs at a sitting, but not more, and that he found that the upper lip was the most difficult part of the face to remove superfluous hair from, on account of the pain; that he was in the habit of telling patients that about 30 per cent. of the hairs would return, so as to protect himself and not cause too much disappointment to patients. Had not had much trouble with scars after the electrolysis. He had ladies consult him for the removal of hairs from other parts of of the body as well as from the face, and said that it was not always the masculine female who was the one who was troubled, and cited a case of a woman with quite a growth not only upon the face, but upon the chest and other parts of the body. The Doctor thought that loss of hair in early age was always due to seborrhea, and when applying medicines to the hair, he instructed his patients to part the hair and use a tooth brush, as in this manner it could be done systematically and thoroughly. Frequent washing and wetting the hair was another cause of alopecia. He also said that he was in the habit of using resorcin in a lotion as an application to the hair and head. The prognosis is unfavorable, as the alopecia will return. The Doctor related the case of a lady who was quite bald and under treatment. Some of the hair bulbs responded with the result that she had some hair, but it was thin and long. Dr. Andrew P. Biddle said that he thought heredity played an important part in this trouble, and related a case where the grandfather, father and son had no hair upon face or other parts of the body, and where the brother of the youngest patient had an undescended testicle. The Doctor thought that there was some relation between the genital system and the hairy portions of the body. He said that he was not able to remove the number of hairs that the essayist had said he removed at a sitting. Dr. Biddle gave his reasons why women were not bald, as a rule. The condition of the scalp, he said, was thicker than in man, which allowed a greater number of blood vessels and a greater number of sebaceous glands; the scalp being thicker was more movable. In applying medicine, the Doctor

did not think that it was always the medicine that did the good, but rather the systematic manner in which it was applied; that, in other words, it was the massage from which the benefit arose, and not the stimulating effect of the medicine always. Dr. Jackson, in replying, said that in a sitting of forty-five minutes he expected to remove about sixty hairs, and that he differed with Dr. Carrier as to the upper lip being a particularly difficult place about the face from which to remove hairs; that he himself had found it quite easy to remove the hairs from this locality, on account of the straight direction of the bulbs. He told his patients that from 15 to 20 per cent. of the hairs would return, but with electrolysis all hairs could be removed, also small tumors, moles, etc. The Doctor also spoke of the calcium hydrosulphid for the removal of small hairs (lanugo), especially for surgical purposes.

THE WAYNE COUNTY MEDICAL SOCIETY, at its meeting April 9, listened to a paper by Dr. Wm. R. Scurr, entitled "Yellow Atrophy of the Liver." In his paper the Doctor reported a case that he had had some two months ago, in which all the symptoms of this disease were present, and by which he made his diagnosis, as no post-mortem was made.

WEEKLY HEALTH REPORT for week ending April 11. The weekly report at the Health Office shows that there were 96 deaths the preceding week, of which 35 were children under 5 years of age. At present there are 7 cases of diphtheria and 25 cases of scarlet fever. Three deaths were caused by diphtheria. During the week 88 births were recorded, of which 47 were males.

Washington.

WEEKLY REPORT OF THE HEALTH DEPARTMENT.—The report of the Health Officer for the week ended April 4 is as follows: Number of death (stillbirths not included), 98; death rate per 1,000 per annum, 18.50: death rate per 1,000 per annum corresponding week last year, 17.33.

WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.—The 244th meeting of the Society was held on the 3d inst. Dr. W. W. Sprigg reported a case of pregnancy complicated with intestinal obstruction followed by accidental hemorrhage and miscarriage. Dr. F. S. Nash reported a case of post-partum mania.

MEDICAL SOCIETY.—At the meeting of the Society held on the 8th inst., Dr. Clark read a paper on infantile paralysis. Dr. Lamb reported a case of rupture of the aorta and presented the specimen.

ANNUAL MEETING OF THE MEDICAL ASSOCIATION.—At the regular meeting of the Medical Association of the District held on the 7th inst., the following officers for the ensuing year were elected: President, Dr. W. P. Carr; Vice-Presidents, Drs. Hawkes and Scott; Secretary, Dr. J. R. Wellington; Treasurer, Dr. H. M. Deetle; Counsellors, Drs. Crook, McLain, Ober, Holden, Acker, Kober, T. R. Stone, Yarnell, and D. O. Leech; Censors, Drs. Woodward, Ruffin and Mayfield; delegates to the meeting of the AMERICAN MEDICAL ASSOCIATION to be held in Atlanta, Ga., May 5, 6, 7, and 8, 1896, Drs. J. T. Johnson, Kleinschmidt, Belt, Sothoron, Heiberger, Franzoni, L. Eliot Rich, Woodward, Nordhoff, I. S. Stone, S. Muncaster, Magruder, Acker, Kober, Bowen, Nash, Scott, Wellington, C. G. Stone, Cook, Fry, E. L. Morgan, W. W. Johnston, Van Rensselaer, Busey, F. Leech, J. F. Thompson, S. S. Adams, Lincoln, Hunt, McLaughlin, J. D. Morgan, Mayfield, Peter, Suter and Carr.

GARBAGE REGULATIONS; VIOLATIONS.—The police regulations of the city require that every premise from which garbage is to be collected shall be provided with water-tight receptacles, not smaller than three gallons nor larger than ten gallons, to be provided with a tight-fitting cover. Disregard of these regulations is punishable by a fine of from $5 to $40. The law is not generally observed by householders and a number of cases of violation are soon to be punished.

THE VENTILATION OF THE HOUSE.—The House Committee on Ventilation and Acoustics has devoted another session to the examination of experts concerning a proposed new scheme for the better ventilation of the House wing of the Capitol building. The committee has about come to the conclusion that the downward system of ventilation is preferable to the one now in vogue, viz. the upward system, and a bill providing for a change may be reported. The estimated expense necessary to make the change is $100,000.

CENTRAL DISPENSARY AND EMERGENCY HOSPITAL.—At the regular monthly meeting of the Board of Directors of the Hospital the following report of its staff for the past month was received: Number of new patients, 843, number of visits 3,396, operations 121, prescriptions 4,318, ambulance calls 32, emergency cases 182, redressings 280, ward patients 41. Drs. Blanche Greaves and Ella M. S. Marble were appointed assistants on the service of Dr. H. L. E. Johnson.

THE PUBLIC SERVICES.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from April 4 to 10, 1896.

Capt. Paul Shillock, Asst. Surgeon (Madison Bks, N. Y.), is granted leave of absence for four months, to take effect on or about May 1, 1896.

Capt. Ashton B. Heyl, Asst. Surgeon U. S. A. (Ft. Thomas, Ky.), is hereby granted leave of absence for one month, to take effect on or about April 20, 1896.

First Lieut. George J. Newgarden, Asst. Surgeon, will be relieved from duty at Fort Wayne, Mich., and ordered to Ft. Yates, N. Dak., for duty at that post.

Capt. Benjamin Munday, Asst. Surgeon, is relieved from duty at Ft. Niobrara, Neb., to take effect upon the expiration of his present sick leave, and ordered to Fort Wayne, Mich., for duty at that post.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending April 11, 1896.

P. A. Surgeon L. L. Young, detached from the naval hospital, Norfolk, and ordered to the "Albatross."

P. A. Surgeon E. S. Bogert, detached from the "Albatross," ordered home and granted three months' leave.

Asst. Surgeon J. M. Moore, detached from the "Vermont" and ordered to the naval hospital, Norfolk.

Change of Address.

Brener, Chas. H., from 1726 So. 9th St. to 1411 So. 13th St., Omaha, Neb.
Blakely, T. J., from St. Louis to Avalon, Mo.
Coppeage, W. E., from St. Louis to Oak Hill, Mo.
Farnum, C. E., 703 Market St. to 661 Market St., San Francisco, Cal.
Green, T. S., from 61st and Halsted St. to 39th and Cottage Grove Ave, Chicago, Ill.; Gunn, Janet, from 618 W. Monroe St. to 5127 Cornell Ave., Chicago, Ill.; Gudex, V. A., from 793 3d St. to 819 3d St., Milwaukee, Wis.
Hamblin, J. M., from Chicago, Ill. to Westboro, Mo.
King, F. R., from Anita to Wiota, Iowa.
Lincoln, D. T., from 73 Pinckney St. to care of C. J. Blake, 226 Marlborough St., Boston, Mass.
Malone, L. A., Jacksonville, Ill. to 427 Senate Ave., N. Indianapolis, Ind.; McKown, T. D., from Chickamauga, Ga. to Cripple Creek, Colo.
Smith, S. L., from 610 W. North Ave., to 350 Webster Ave., Chicago, Ill.
Van Hook, Weller, from 858 W. Monroe St. to 4043 Grand Boul., Chicago, Ill.

LETTERS RECEIVED.

American Cutlery Co., Chicago, Ill.; Alta Pharmacal Co., St. Louis, Mo.; Ash, E. E. Goshen, Ind.; Anderson, Albert A., (2) Des Moines, Iowa.
Boggess, J. W. Catlin, Ill.; Beardsley, W. E., Brooklyn, N. Y.
Colvin, Darwin, Rochester, N. Y.; Christison, J. S., Chicago, Ill.
Dean, G. S., San Francisco, Cal.; Doliber-Goodale Co., (2) Boston, Mass.; Day, Frank L., Providence, R. I.; Dillard, H. T., Argenta, Ark.
English, W. T., Pittsburg, Pa.; Editor Domestic Engineering, Chicago, Ill.
Farrington, John M., Binghamton, N. Y.
Greene, F. M., Lexington, Ky.; Gordon, W. Frank, Danbury, Conn.
Haldenstein, L., New York, N. Y.; Houston, James, Detroit, Mich.; Hotel Aragon Co., Atlanta, Ga.; Hummel, A. L., Adv. Agency, New York, N. Y.; Haines, W. D., (2) Cincinnati, Ohio.
Ingals, E. Fletcher, Chicago, Ill.
Kansas City Adv. Agency, Kansas City, Mo.; Kerrick, H. C., Brocton, Ill.; Kane, H. H., New York, N. Y.
Lawbaugh, A. I., Opechee, Mich.; Lord, J. P., Omaha, Neb.; Ludwig, Henry, C., New York, N. Y.
Mariani & Co., New York, N. Y.; Malsbury, L. O., Peru, Ind.; Mumaw, H. A., Elkhart, Ind.; McDonald, C. E., New York, N. Y.
Northwestern University, Chicago, Ill.
Pearse, Herman E., Kansas City, Mo.; Paquin, Paul, St. Louis, Mo.
Ragsdale & Chassell, (2) Le Mars, Iowa; Rhodes, John Edwin, Chicago, Ill.; Reed & Carnrick, New York, N. Y.
Schering & Glatz, New York, N. Y.; Schieffelin & Co., New York, N. Y.; Savage, G. C., Nashville, Tenn.
Tieste, L. E., Brooklyn, N. Y.; Tuley, Henry E., Louisville, K.; Turck, Fenton B., Chicago, Ill.
Williams, J. O., Houston, Texas; Woody, Samuel E., Louisville, Ky.; Wilbur, C. T., Lansing, Mich.; Woodbury, Frank, Philadelphia, Pa.
Yager, J. William, W. Lafayette, Ind.
Zumo Pharmacal Co., St. Louis, Mo.